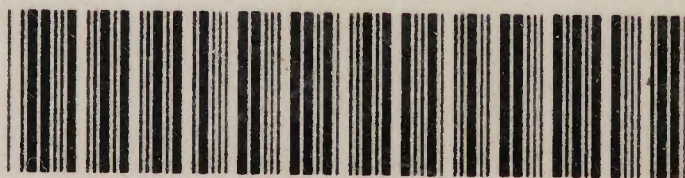
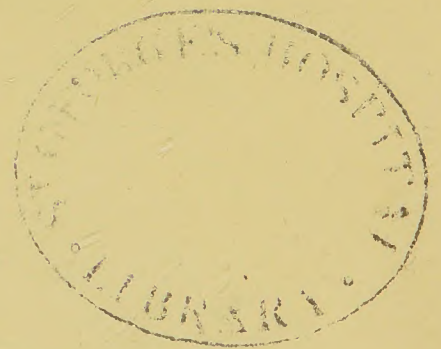
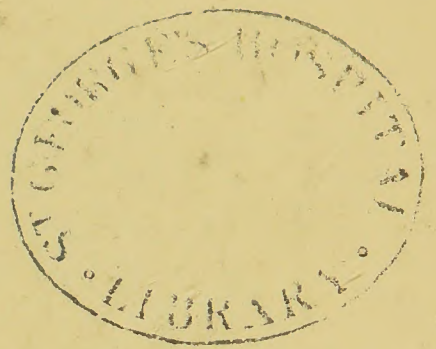





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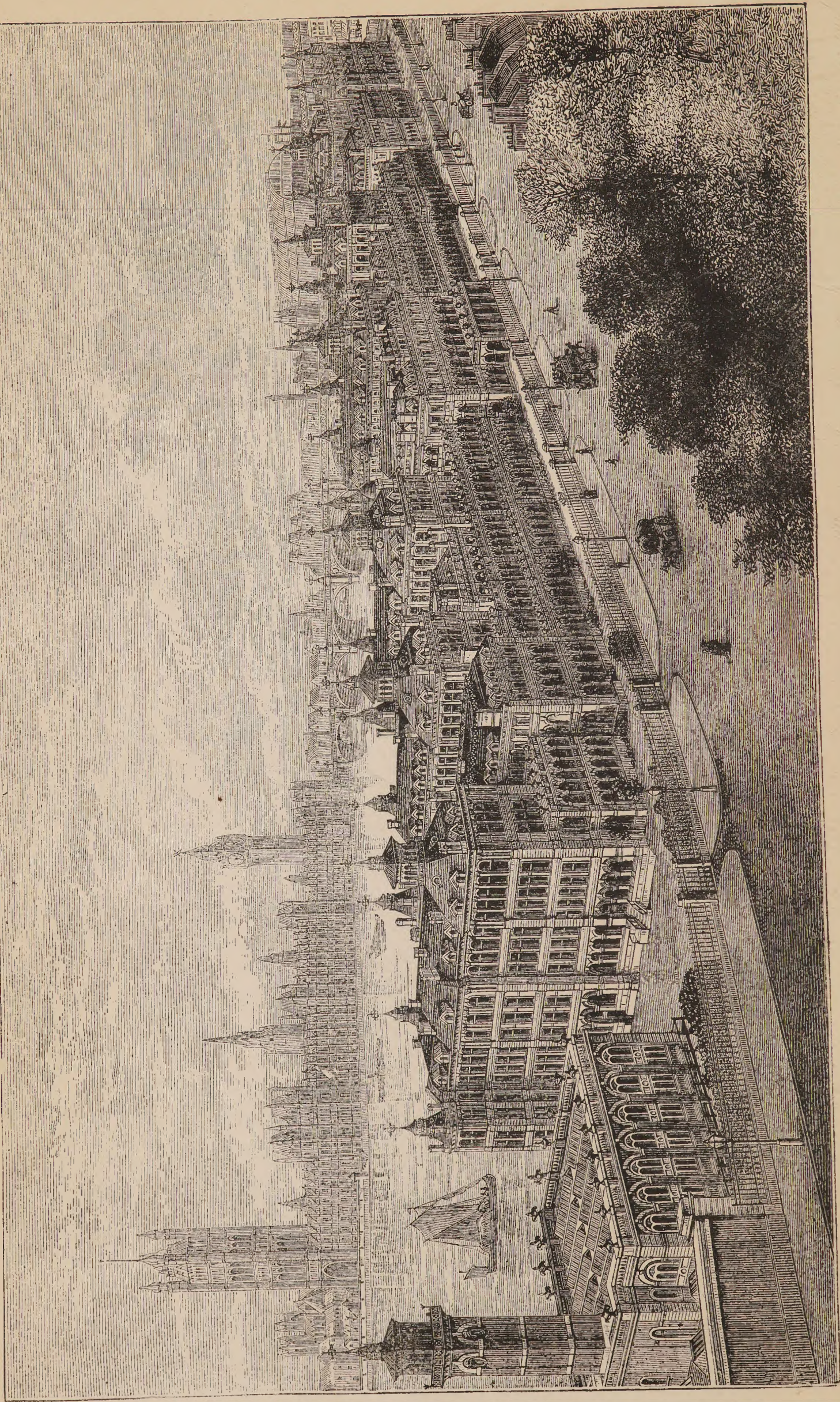
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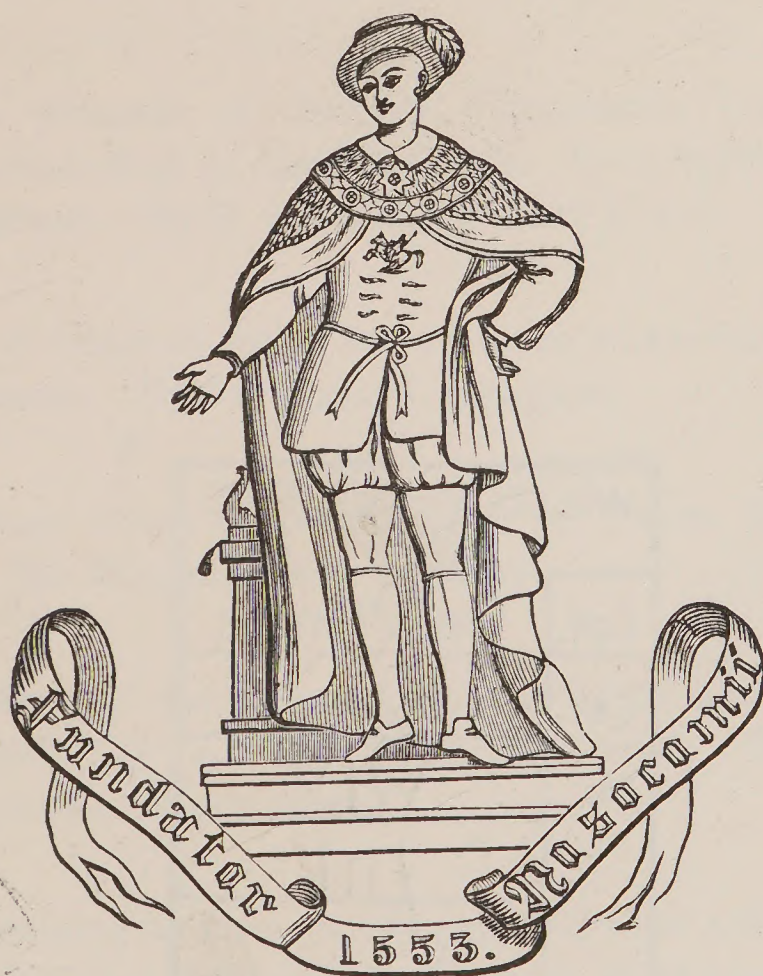
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SOME RECORDS OF SURGICAL EXPERIENCE,

BEING A CONTRIBUTION TO THE

COLLECTIVE INVESTIGATION OF DISEASE.

(Continued from 'St. Thomas's Hospital Reports,' N.S., Vol. XIV, p. 31.)

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Treatment of surgical hæmorrhage.—The therapeutic action of heat and cold.—On Nature's methods of cure; viz. by elimination; by augmented, diminished or suspended functional activity; by partial sacrifice.—Compensation.

Treatment of Surgical Hæmorrhage.—Surgical hæmorrhage is understood as excluding loss of blood from sources which are inaccessible to surgical relief, such as the stomach, lungs or brain. I have no intention of writing an essay on this subject, but I propose simply to record my own experience in the use of the usual surgical means adopted in arresting hæmorrhage.

Loss of blood, such as comes within the province of the surgeon to treat, may result from various causes, and may occur under very different circumstances. The remedial means at his command are likewise various, and must be accommodated to the requirements of each case. We may, thus, have bleeding from an artery or a vein, or general

oozing from many invisible vessels; the cause being injury by cutting, bruising, tearing or puncture, or from destruction of tissue by ulceration. To meet these various conditions, we have the ligature, torsion, compression, and other supplementary aids, such as styptics, cold, heat, position, rest, &c.

I am not sure that there is always a clear distinction made between reactionary and secondary hæmorrhage: and yet this is not a fanciful difference in nomenclature; it is one of real practical importance.

By *reactionary* bleeding is meant that loss of blood which succeeds primary hæmorrhage, when the propelling power of the heart recovers from its enfeebled action consequent on the loss of its normal stimulus; and probably vaso-motor constriction is simultaneously relaxed. The syncope, partial or complete, which ensues from copious bleeding, is nature's styptic method of sealing the mouths of divided vessels whilst at comparative rest; and this is accomplished with the co-operation of the excito-motor contraction of the vessels,—the vaso-motor activity being probably manifested in syncope as in sleep, in an inverse ratio to that of the cerebro-spinal system. But when the restored action of the central pump reaches again the more distant parts of its dominion, the plugs are forced out, and reactionary hæmorrhage ensues.

True *secondary* hæmorrhage occurs later on, and is consequent on suspended repair of an injury, in which the earlier risk has been tided over, or from subsequent sloughing or ulceration involving vessels of greater or less magnitude. Of course either form of hæmorrhage, primary, reactionary or secondary, may be fatal. The *reactionary* form is rarely repeated if once controlled; for the shock dependent on it is severe, and the recovery is gradual and slow, and not, as it were, with a bound, as sometimes in the first reaction. The period at which reactionary hæmorrhage may happen varies very much according to circumstances, so that no definite limit can be assigned to the possible occurrence of this contingency. The age and strength of the patient, the shock of an operation, the quantity and quality of the blood originally lost, and the time over which that loss was spread, as well as the condition of the vessels, have all an important bearing on the answer to this inquiry. Emotional shock, such as fear,

may depress the heart's action when the loss of blood has not been great; and then reaction may be early, when the emotional pressure is removed. As a general rule, the greater the original loss and the deeper the depression, the more tardy is the reaction, and therefore the less the probability of a renewal of the hæmorrhage. In ordinary cases reasonable security may be felt after the lapse of twenty-four to thirty-six hours: but the state of the pulse, and other evidences of returning activity of circulation must be taken into consideration, in judging of the likelihood of any recurrence of the bleeding. Of course these remarks apply with much greater force to arterial than to venous hæmorrhage.

Secondary hæmorrhage is almost always ushered in by some premonitory indications, both local and general, sufficiently suggestive, usually, to put the surgeon on his guard, though often so sudden as to defy his precautions. These indications are, general want of power and tone; an absence of recuperative effort, manifested by a feeble and irritable pulse; want of sleep, lack of appetite, &c.: and when these symptoms are combined with a sluggish, inactive condition of a wound, with unhealthy discharge, denoting waste of tissue rather than repair, there is considerable risk of secondary bleeding, especially in the neighbourhood of large vessels, the branches of which may be involved in the destructive process: yet it is remarkable how rarely the main arterial trunks are laid open by ulceration. Compound fractures, especially of the leg, are not infrequently the seat of such secondary hæmorrhage as I have described, where the subject of the injury manifests low reparative power. It is impossible to fix any limit to the time during which this may occur. Repair may proceed satisfactorily at first; and afterwards, in consequence of some untoward circumstance, affecting the patient's health, aided, perhaps, by an unwary movement or sudden excitement of the circulation, the dreaded mischief is done: dreaded, because patients in whom secondary hæmorrhage is likely to happen, often fall victims to a sudden and copious bleeding, in consequence of their lack of reactionary power, wherewith to rally from the shock.

Deligation of an artery to arrest bleeding has stood the test of long experience, since it superseded the barbarous use of

the cautery : and Hunter demonstrated its value when applied to an artery in its continuity. Though the object in each case is not, in one sense, identical, yet the result, as regards the effect upon the artery and the permanent arrest of the current of blood, is the same. There are few simple experiments which teach so much in an easy way as that of tying a fine twine or silk ligature round a piece of fresh artery ; yet the knowledge thus imparted is generally acquired at second hand. The clean cutting of the inner and middle coats of the vessel demonstrates their individuality, their structure, and their properties and uses, in a way which no reading can convey ; and it also suggests the very mode in which the permanent closure of the artery is effected. The retraction and contractility of the elastic tissue, as the first step in this direction, is easily displayed, and the resisting toughness of the outer coat is shown to be an essential condition in the satisfactory action of the ligature.

My experience in the use of *torsion*, as a substitute for the ligature where large vessels are concerned, is very limited : the fact is I have never had sufficient confidence to trust to it, especially as the ligature is rarely attended with any serious inconvenience. Yet twisting small arteries is not a modern introduction : it is a lesson we have learned from the comparative security from bleeding of torn vessels ; for what we do by torsion is an imitation of what is done by tearing an artery asunder ; viz. elongation of the tough fibrous coat beyond the friable and lacerated middle coat, which retracts ; whereby the formation of a plug in the mouth of the vessel is facilitated. I cannot say that I recognise any special advantage in *acupressure* : the ligature is certainly more secure.

The substitution of an animal ligature cut off close to the knot, for one of silk, is certainly a valuable innovation on the older practice. I should probably have saved, by this method, a case of axillary aneurism, in which the ligature on the subclavian artery was torn away by a refractory patient, when the wound was nearly healed, as narrated in my remarks on "ligature of arteries." By the use of these animal ligatures the wound heals more readily, and the risk of bleeding in the separation of the ligature is avoided. And this remark is

applicable, whether the artery be tied in its continuity or at its open mouth.

What becomes of these animal threads? Probably they are simply soluble in the surrounding tissues, and are removed like other effete, unrequired material. No satisfactory proof has been adduced of their being organised; by which I suppose is meant that this foreign texture is supplied with vessels, and identified with the living tissue around it. I would say further, that the weight of evidence seems to be in favour of the opinion that fibrinous deposits exist only for temporary purposes and are not organised, but are absorbed when the purpose of their presence is fulfilled. The same remark applies, with still more force, to the coagula with which injured blood-vessels are plugged. Clots are never organised.

Compression is often available for the arrest of hæmorrhage in various forms and circumstances. Sometimes it is employed only as a temporary expedient, as in amputation or until a bleeding artery can be tied; in other cases it is designed to supersede all other means, as in epistaxis or for the cure of aneurism. But many precautions are indispensable to render this remedy effectual; and, it is scarcely necessary to add, also an accurate knowledge of the anatomical relations of arterial trunks and of their communications with each other, whereby we become familiar with the best position at which to compress the trunk which supplies the bleeding vessel, and are enabled to avoid the futile attempt to control hæmorrhage by only diverting the current into collateral inosculating branches. Thus, the circulation through the upper or lower limbs may be restrained by compression of the trunks, respectively, against the first rib and the pubes: but it is useless to attempt this below the elbow or knee, where there are free communications between their branches.

Failures of this sort are not uncommon, with either ligature or compression, in bleeding wounds of the hand, where the current in both radial and ulnar arteries is interrupted; for the interosseal vessels will carry on the circulation. With a trustworthy assistant I prefer manual compression to the tourniquet in amputation; and I used to elevate the limb in order to empty the vessels, and thus reduce to a minimum

the first gush of blood : and this is still desirable, even with the use of Esmarch's admirable elastic bandage, when it is important to save every drop of blood. It is unnecessary to praise this simple but valuable contrivance, which is, moreover, of great assistance to the surgeon in protracted operations, where clearness of vision is requisite, such as the removal of a sequestrum from a cylindrical bone.

Where a *compress* is used to control hæmorrhage at the bleeding part it is essential to employ a suitable material, which shall adapt itself accurately to the inequalities of a wound, and also admit of removal with as little disturbance as possible. Sponge is in many respects appropriate for the former purpose, but its porous nature renders it unsuitable for the latter ; as the blood will permeate its pores, and, on its removal, the fibrinous clot in the wound will be torn away. But if a sponge compress be covered with a piece of cambric or gauze this objection is obviated. For the same reason sponge should not be used for plugging the nostrils in epistaxis.

Uniform compression of a limb is also valuable in arresting hæmorrhage : but it must be really uniform, and should include the whole and every part of a limb below the seat of injury. Such treatment, however, requires careful watching, or the vitality of the member may be endangered.

Styptics are sometimes available where a ligature or compression cannot be employed. I cannot say I am disposed to attach much value to them as a class, though they are occasionally convenient. The perchloride of iron is probably the best, owing to its property of rapidly coagulating the blood with which it is brought in contact. Tannin is likewise useful ; and I also value the somewhat old-fashioned remedy of matico leaves. Chloride of zinc in solution, as I have remarked in another paper, is efficacious in arresting surface bleeding, by favouring the coagulation of fibrin from the blood. Under certain circumstances the actual cautery is preferable to all styptics, as in hæmorrhage from a deep-seated cavity which is inaccessible to any other remedial interference. Of styptics taken internally I prefer lead with opium to any other ; I think it more generally useful, but it must be given with caution.

Cold may very generally be employed with advantage in arresting hæmorrhage, either in the form of a lotion or of irrigation, or of ice. A stream of cold water, allowed to flow continuously over a bleeding part, is often effective, and is free from any objection : but it cannot be trusted alone, where vessels of any size are divided. Ice is more efficacious, and may be applied either directly to a wound, or wrapped in linen. Bleeding from the rectum may be controlled by the injection of iced water into a tubular bag, introduced into the bowel ; we have, in this way, pressure and cold combined.

It is scarcely necessary to add that *diet* is an important element in the treatment of hæmorrhage. Except under the pressure of necessity stimulants should be sparingly allowed or prohibited : but it is an error to assume that, in all cases, abstinence from nutritious food is desirable. On the contrary such food is often an essential part of the treatment ; not so much to supply the deficiency of blood occasioned by the loss, as to improve its quality, and thus diminish the risk of a recurrence of the bleeding.

The *position* of a bleeding part should be as elevated as practicable ; and *rest* should be in a comfortable position, which can, if necessary, be changed from time to time without disturbance.

The *hæmorrhagic diathesis* may be suspected where bleeding is persistent, and resists the control of ordinary remedies. The suspicion that it exists may generally be verified by questioning a patient as to the behaviour of trifling lesions attended by loss of blood. Small wounds are sometimes very troublesome in these cases : I have known bleeding from a tooth-socket, and even from a leech-bite so persistent as to blanch a patient. In epistaxis it is serious, for plugging the nostril is not always successful in permanently arresting the loss of blood, which is apt to recur when the plug is removed. A well-oiled pledget of lint forms the best plug : but this should not be neglected, as suppuration will ensue if it be left in too long. In bleeding from a tooth-socket a plug moistened with perchloride of iron is the best styptic : and if there be an opposing tooth, the jaws should be kept in contact with a bandage ; or, in the absence of such tooth, its place should be supplied by a suitable compress.

What is the explanation of this proneness to hæmorrhage in some persons? In some instances it may be due to the defective plasticity of the blood: but it is not improbable that deficient control on the part of the vaso-motor system is, in many cases, if not generally, the explanation of this singular phenomenon.

Punctured or penetrating wounds, involving vessels of any size, are difficult to manage, as, indeed, are all partially divided arteries. The muscularity and elasticity of their texture causes the wound to gape and prevents the formation of a plug. Therefore it is expedient, in some instances, where it is practicable, to complete the section of a partially divided artery, that its open mouth may then contract and retract. Where a large arterial trunk is implicated in a penetrating wound, prompt and decisive action is demanded. Such a wound of the brachial or femoral artery, or of their divisions, admits usually of but one mode of treatment, viz. exposure of the bleeding vessel, and the application of a ligature both above and below the wound in it. This is not always easy, for the extravasated blood displaces the surrounding textures and disguises the position of the vessel, which cannot be distinguished by its pulsation because of the necessary compression above to stop the circulation through it. Under these circumstances the simple expedient of passing a probe or a director along the track of the wound, and retaining it there, will be found a valuable guide to the operator in his search for the point of injury.

Sometimes it is inexpedient to attempt this mode of securing a wounded artery; *i. e.* where it is impossible to determine the exact source of hæmorrhage, and where search for the bleeding vessel is likely to involve the opening of others. This remark is exemplified in wounds of the palm of the hand or sole of the foot. It is true that, in these cases, we may know the source from which the bleeding proceeds; but the difficulty of detecting the bleeding point, and the risk of dividing other branches in the search, are almost insurmountable. Moreover, the inosculation between the branches of the several arteries is so free, as often to defy any attempt to arrest such hæmorrhage without applying a ligature on the supplying trunk. This remark is especially applicable where the palm

of the hand is the seat of persistent arterial bleeding. As already remarked, uniform pressure,—with Esmarch's bandage for example—may be successful in these cases.

In penetrating wounds of the neck it is difficult and, I think, injudicious, in many cases, to extend the wound for the purpose of searching for the bleeding vessel. Of course, if the direction of the wound lead to a reasonable conclusion that the carotid trunk is injured, then that vessel ought to be exposed and tied both above and below the bleeding point. But if the course of the wound be inwards, behind the angle of the jaw, it is impossible to say whether the bleeding is derived from the external carotid or any of its branches, or even from the internal carotid. In two cases of this description I tied the common carotid with entire success, and, fortunately, without the occurrence of any untoward cerebral symptoms.

The Therapeutic Action of Heat and Cold.—When we use the words “heat” and “cold” we employ them simply as signifying two opposite conditions; the latter being the negative of the former. But it is convenient to use the word “cold” as if it were a positive condition, to save circumlocution in writing on this subject.

In surgical treatment heat and cold are often employed indifferently, and not without some reason; for a similar result is obtained by their aid, though in a different way. But there is one rule by which to abide in the use of either, if its efficacy is to be tested, viz. that its employment should be continuous and not intermittent. In order to appreciate the action of heat and cold it is necessary to bear in mind the local vascular condition in the circumstances in which their aid is most frequently sought.

The blood-vessels must be regarded simply as conduits of nutriment throughout the body, but without any active part in growth. It is true that the delicate membranous channels which constitute the capillaries permit the transudation of liquor sanguinis for this purpose, and that these vessels remove effete matter and have the power of extending themselves by offshoots into new tissues; but these tissues grow by their own intrinsic power of development in their own germs.

It should be also remembered that the arteries are both

elastic and muscular, the latter property increasing and the former diminishing as they recede from the heart, *i. e.* as the vessels diminish in size and are less under the control of the heart's action. Lastly, and not least importantly, it should be borne in mind that these muscular arterioles are governed by the vaso-motor nerves, derived from cyclo-ganglionic centres, and distributed to these vessels to their termination in the capillaries. Arteries, therefore, are actively contractile, as well as distensible, owing to their elasticity; and veins possess the same properties, though in a much lower degree: but the valves of healthy veins play an important part in diminishing any tendency to engorgement which may exist.

It will suffice to add that the first observable sign of inflammation is capillary stagnation, immediately succeeded by exudation of the liquor sanguinis, and followed by an increase in the local supply of blood, which is coincident with dilatation or augmentation of the calibre of both arteries and veins in the affected part, and a relaxed condition of the capillaries. Whilst this dilatation is proceeding the blood-current first increases in rapidity, then gradually slackens and becomes irregular, and finally stops; thus capillary *stasis* is produced. The red corpuscles now appear to coalesce. It is during this period of gradual retardation of the blood-stream, and whilst the vessels are dilated, that the liquor sanguinis exudes, and the white corpuscles, or leucocytes, migrate from the vessels,—a locomotive property possessed also by the red corpuscles under certain circumstances: and this transudation appears to be dependent on some change in the vital relations of the blood-vessels and their contents, as it does not occur in health. The accumulated leucocytes which have thus escaped from the vessels appear like a mass of protoplasm, and possess amoeboid movements and the power of absorbing materials with which they are brought into contact: pus globules are derived chiefly from leucocytes, and their abundance may be accepted as a measure of the reparative effort in an inflamed part.

Lastly, it should be remarked that the liquor sanguinis differs from serum in containing fibrin: the former is essentially an inflammatory exudation, whereas the latter—serum—may be poured out under various circumstances which are

independent of inflammatory action, and as readily reabsorbed. Thus, redness and heat are due to the increased flow of blood to an inflamed part, and the more rapid evolution of caloric; the pain is due to tension, and the swelling to exudation.¹

The extremes of temperature produce similar effects upon the body. Severe burn and frost-bite destroy texture; and the reaction which succeeds reduced temperature is a condition closely allied to the immediate effects of heightened temperature. Vital action in a part may be suspended for a time by a low temperature, and restored if the suspension be not continued too long; permanent loss of vitality may ensue on the continuance of this low temperature, or it may be consequent on too sudden and excessive reaction. Excess of temperature, within certain limits, can be borne with impunity; but beyond those limits the skin becomes inflamed or vesicates, or both it and deeper textures may be rapidly destroyed. Free perspiration and rapid evaporation are very preservative of the skin in air of a high temperature.

In considering the therapeutic action of heat and cold it is necessary not only to regard the local condition, but also the general state or constitutional power of the patient and his reactionary vigour: it is also frequently expedient to consult his feelings as the best guide in the election between the two. As regards the local signs, we should have a definite object in view, based on a clear conception of the actual condition of the affected parts, and of the probable effect of the application, in which the important agency of the vaso-motor nerves plays a conspicuous part.

Lengthened exposure of the body to either a high or low temperature, whether of the atmosphere or in bathing, exercises a depressing influence on the frame generally: this is probably by a direct appeal to the nervous centres, and also by derangement of the blood-pressure. Heat favours activity in the circulation, especially of the surface of the body; but cold produces congestion of internal organs, and pallor of the surface and muscular rigidity, which is due to exclusion of blood from the capillaries of the skin and muscles, in consequence of the contracted state of the small arteries, under the

¹ This subject is treated more fully in the first section of my 'Outlines of Surgery,' 2nd edit.

influence of the vaso-motor nerves. Locally the effect is similar : warmth favours relaxation of the tissues, and exudation as well as cutaneous secretion are encouraged : cold stimulates contraction of the small arteries, and thus diminishes the quantity of blood in the affected area. In each case, therefore, relief is obtained in an inflamed part, though in a different way.

I am convinced that cold bathing is indulged in too indiscriminately, and without due regard to simple elementary conditions. Very few persons can, unless gradually habituated to it, remain long in cold water, in this climate, without risk. An active swimmer of course has the advantage of being in exercise, but even he should be cautious. The not infrequent instances of sudden death under these circumstances are generally attributed to cramp : it is far more probably due to arrested action of the heart, consequent on serious disturbance in the equilibrium of the circulation, produced by vascular constriction on the surface ; and this may be accompanied by some degree of muscular rigidity, but not sufficient to paralyse an expert swimmer. Again, it is a popular belief that it is dangerous to enter the water when warm ; whereas, it is the immersion of the already chilled body that does mischief. A brisk walk to the bath is a good preparation for it. This caution is exemplified by the impunity—the benefit indeed—with which a cold bath is taken immediately after exposure of the body to a high temperature in the hot-air bath. I was agreeably surprised, on my first experiment in this way, to find how much less the shock proved than I anticipated : yet it is not unreasonable it should be so, when we consider the condition of the circulation on the surface, constituting, with the activity of nerve-energy, a preparedness for the shock ; the effect would be different if the immersion were protracted beyond a few seconds. Of course feeble reactionary power should be prohibitory of cold bathing : and the true therapeutic effect of this hygienic agent is obtained by the sudden and complete immersion of the body, and a speedy and thorough friction of the surface with a rough towel : for this is not only invigorating, but the skin is thereby thoroughly cleansed of its loose epithelial scales. I may remark, for the advantage of those who cannot bear cold bathing, that towel-

gloves, dipped in water, and used for rapid friction of the skin, followed of course by rough drying, are a good substitute.

I have naturally no experience of the value of cold affusion in fevers, but I can speak of the grateful and soothing effect of tepid sponging in surgical fever: in each instance the beneficial result must be directly due to the reduction of temperature.

Hot-water bathing is popular, more, I suspect, because it is agreeable than for its therapeutic advantages; and I am disposed to think that the same remark is applicable to most medicated baths: but this is a medical rather than a surgical subject. Long immersion in water much above the temperature of the body has certainly a depressing or enervating effect, and should not be indulged in, except for some special purpose. Of the Turkish or hot-air bath I entertain a high opinion, where it can be borne, and there are really few whom it does not suit. It is a safeguard against headache to wet the head before entering the hot-air chamber; for the evaporation obviates the distress occasioned by the heat until perspiration commences. Of vapour baths I have no experience.

“Packing,” according to the hydropathic system, is another mode of applying water to the surface, which can be classed with neither cold nor hot applications. It is true that the sheet or wrapper is cold when used, but the purpose in view is to procure copious perspiration, and this is more readily secured, in most cases, by the reaction succeeding the shock of the cold sheet. The fact is that “packing” is nothing more or less than a poultice, in the form of a water-dressing on a large scale. It acts generally in the same way as a poultice does locally, and is, certainly, often very efficient in restoring the equilibrium of a disturbed circulation, and in promoting, directly or indirectly, a healthier condition of the secretions. No doubt the cold sheet is best when it can be borne; but I do not regard this as an essential element in the treatment: tepid or warm water is to be preferred where the reactionary power is feeble and insufficient.

Various means may be employed for local reduction of temperature; but, in all, the *modus operandi* of the remedy is the same, viz. by vascular constriction and consequent

exclusion, more or less, of blood from the part to which the treatment is directed. This must be the reflex effect of an appeal to the vaso-motor centres. The relief thus obtained explains in great measure the amelioration of all the signs or symptoms of inflammation; for the diminution in the quantity of blood, contained in a given area, necessarily lessens proportionally the redness, and so much of the swelling and heat as is due to that cause; for the heightened temperature depends on the more active evolution of heat at the focus of inflammation, where the chemical changes correspond with the quantity of blood in the affected area. Pain is likewise mitigated by the reduction of the tension: but this depends on the stage of the inflammation, and on the resistance of the tissues affected.

The topical use of cold must be determined very much by the stage of inflammation. As a rule I have been accustomed to limit its employment to the early stage, *i. e.* before the tension of the tissues indicates that plastic exudation has already succeeded the stasis in the vessels. In deep-seated inflammation, especially under dense fibrous tissue, cold is rarely admissible. It is imprudent, in some cases dangerous, to use cold applications to an inflamed surface, where there is a risk of inducing a metastatic transfer of the inflammation to some other part; and this remark applies more particularly to certain specific forms of inflammation, and also where the surface of the chest or abdomen is involved. In traumatic hæmorrhage from small vessels cold is valuable by stimulating contraction of their open mouths: and it may be employed with advantage in arresting bleeding from the rectum. Where cold acts as a nerve-sedative it is probably by the intermediate agency of the blood-vessels, through the vaso-motor nerves.

Ice is now used largely in both surgical and medical cases. It is a prompt and efficient mode of employing cold; and is certainly valuable in many instances, where there is no mechanical difficulty in its use. But in the majority of cases I prefer trusting to the uniform and continuous action of an evaporating lotion, either of lead or spirit; it is a gentler and more soothing mode of accomplishing what is desired; but a thin strip of linen should be used, and this should never be

allowed to dry. Irrigation is an excellent mode of employing cold, whether to reduce temperature or to arrest bleeding. It is scarcely necessary to add that caution must be exercised in depressing the temperature of parts which have naturally a low vitality; and that any pathological condition which denotes local deficiency of power or waste or impending molecular disintegration forbids the employment of cold.

There is one use to which a rapid reduction of temperature was formerly applied, but which is almost entirely superseded by inhaled anæsthetics. The temporary freezing of the sensitive skin which was to be incised in operating was then considered a great boon in many operations: and I do not think we do well to discard it altogether now. This may be accomplished either by a mixture of pounded ice and salt, the action of which is very rapid and requires caution, or by a spray of ether. A deadly pallor overspreads the surface, and the skin is almost crisp as the knife passes through it. The cold caused by the above mixture is intense, and its application must not be prolonged.

The utility of the topical employment of *heat* is exemplified in various ways and conditions. I would first remark on the wasteful expenditure of this vital element of our existence by unnecessary exposure and insufficient clothing: and this especially in the case of the young, under the popular but absurd impression that they are thereby "hardened." I believe that much illness is produced and many lives are sacrificed by lack of due attention to the elementary truth, that food is taken for combustion and the evolution of animal heat, as well as for growth and the supply of material waste by nutrition. Of course there is an opposite extreme in which too much fuel is heaped on the fire: therefore our heat-supplying food should be adapted, in quantity and quality, according to the atmospheric temperature and our need.

For the local benefit to be derived from heat it should be allied with moisture. Indeed it is the combination of these two elementary conditions of vegetable growth that fulfil all the desiderata for which fomentation, poultices, and water-dressings are employed in surgery. The office for which these applications are used is, as already observed, that of relaxing

the tissues, and of favouring transudation from the vessels, and from the skin if unbroken. In a granulating surface warmth and moisture favour growth and reproductive energy; in molecular death the failing temperature is supplied artificially and the structural *débris* is removed. In acute suppuration the employment of moist heat is serviceable both mechanically and vitally; and in the early stage of inflammation, it is often very grateful to the patient as well as serviceable in relieving the tension of the vessels.

Where it is available, without too much disturbance of the patient, fomentation is the most efficient method of applying warmth and moisture: but it must be perseveringly used to be fully serviceable. Whether a sponge or a soft coarse flannel be employed, it should be placed in a basin and some hot water poured on it: then it should be thrown into the centre of a towel and rolled up: it can thus be wrung out by twisting the ends of the towel. If covered over with a dry flannel and piece of macintosh, it will retain the heat for a considerable time.

Poultices may be made of a variety of ingredients. Linseed meal sometimes irritates, perhaps because it is impure: in one instance recently under my notice, its use always produced constitutional disturbance and nettle-rash. The best bread poultice is made from stale bread, grated. Scraped carrot makes an excellent stimulating poultice; linseed with stale beer-grounds is similarly useful. A cleanly substitute for linseed or bread is the water-dressing, and therefore in many cases it is to be preferred. Some soft and absorbent material should be selected, such as lint, or, still better, "absorbent wool," which must be sufficiently wetted to ensure its retaining the moisture, under cover of oiled silk or gutta percha. In the treatment of open wounds with this dressing a weak antiseptic solution may often be used with advantage, wherewith to moisten the pad. The material known as spongio-piline is cleanly, but heat soon spoils it. As the object is to retain the heat and moisture generated in the skin rather than to supply them, it is of little importance whether the water-dressing be applied hot or cold, except for the comfort of the patient at the moment of application. Stimulating lotions are more beneficial when applied, as to an ulcer, on

lint beneath the poultice : to medicated poultices and fomentation I do not attach much value. As a derivative moist warmth commends itself alike to physicians and surgeons ; and its agency in such case is due to its physiological influence over the vessels of the surface to which it is applied. With cleanliness as its handmaid, and functional rest, the surgeon requires little else in the treatment of many troublesome cases, where patience is of more avail than active, and therefore frequently mischievous, interference with Nature's method of cure.

ON NATURE'S METHODS OF CURE.

I have spoken elsewhere of the lesson we all have to learn of mistrusting our own independent ability to cure disease, and of the danger of disregarding or thwarting nature in the suggestive teachings which are presented for our observation and instruction in almost every pathological condition which we are called on to treat. It is almost impossible—so it seems to me—to exaggerate the importance of this study ; it adds greatly to the interest of our professional duties if pursued in a philosophical spirit ; whilst it inculcates humility, and establishes our self-reliance on a stable foundation, and is the best antidote to empirical practice. A few observations on nature's methods of healing will serve to indicate and exemplify the import of these remarks and to give expression to convictions which have no novelty to recommend them, and can lay claim to no authority except such as their maturity from lapse of time may confer.

Elimination.—Eliminative action plays an important part in the animal economy in disease as well as in health ; for a large proportion of the pathological phenomena which we witness are simply the expression of nature's effort to eliminate that which is noxious from the system ; that which, if retained, would interfere with the healthy discharge of function or threaten life itself. It is true that this eliminating activity, by its excess or in consequence of the direction in which it

works, may be an aggravation of the original mischief or in itself a source of danger : nevertheless it must be regarded as essentially salutary in its aim : and in an appreciative acceptance of this truth we have a guiding principle in our practice, which will stand us in good stead in many doubts and perplexities. It is well to work with nature, and to rely on her guidance and teaching ; and then she will welcome the aid we can supply in furtherance of her efforts, instead of resenting officious and ill-timed interference or opposition to her indications. This, indeed, is one of the chief lessons we may learn from the study of the subject now under consideration.

The organs which are chiefly engaged, physiologically, in eliminative action are the great excretory glands, with the cutaneous and mucous surfaces of the body. Provision is thus made for the carrying off the refuse of the ingesta, both solid and fluid ; and the products of the vital chemistry are also removed, in so far as they would be detrimental if retained. The carbon, which is the product of combustion, is eliminated by the lungs, those great thoracic glands, which are constantly pouring it forth in its gaseous solvent by the tracheal duct. Each organ has its own special function ; yet it is interesting to notice how harmoniously they co-operate, often helping one another by vicarious action. The skin and mucous membrane, the kidneys and liver exemplify this sympathy, in their effort to maintain that equilibrium of functional discharge which constitutes health ; an effort which is often thwarted or rendered nugatory by imprudence or wilful provocation, until the constantly overtaxed exertion of these organs terminates at length in premature disorganisation and death.

The compensating and recuperative power of our frame is manifested in the frequent functional derangement to which it is subjected, with only transient ill-effects : and it is this very impunity which so commonly misleads those who consciously expose themselves to the strain. But the longer the evil day is deferred, the more sudden and certain is the penalty exacted. This is the history of a multitude of diseases, in which even vicarious eliminative action at last fails to relieve ; and there is nothing then to fall back upon ; dissolution, under these circumstances, cannot be long deferred.

There are not many diseases the whole of which lies upon

the surface, so to speak: there is some hidden spring which if recognised and understood, explains that which is superficially observed. Yet this association between the visible and the unseen induces us not infrequently, and sometimes incorrectly, to attach more importance to the former than to the latter; to regard signs and symptoms as the disease itself, instead of searching more deeply for the latent cause of these external proofs of its presence. Naturally such false pathology is likely to betray us into erroneous treatment, if we deal with effects only and leave the cause untouched, perhaps unsought. No doubt the true seat of a disease—the *fons et origo mali*—may be quite inaccessible to us, as in specific fevers; then it is our business to wait on nature, supplying the needful support, and mitigating the severity of the measures she adopts for the elimination of the poison which is beyond our reach. In such cases we are restricted to the treatment of symptoms.

In surgery also the cause of patent mischief is itself frequently concealed from view; but is more often within the reach of remedial assistance than in medicine. The presence of deep-seated pus, or the occurrence of internal strangulation, and many forms of accidental injury are familiar examples. Diagnosis, in short, is the best test of a medical man's capacity to practise any branch of his profession: cultivated ability in this respect distinguishes the man of science from the empiric; and not less so the student of nature from the student of books.

But to return;—what part does elimination take in disease? It is one of nature's most potential instruments in its cure. Wherever it is practicable the demon is to be cast out; and in this very effort an important organ is sometimes taxed beyond endurance, and its structural integrity is imperilled or damaged; and the remedy is thus as dangerous as the disease. This is exemplified in the crisis or sequelæ of typhoid and scarlatina and many similar illnesses, in which the care of the physician is diverted from the primary source of the mischief to these grave complications, which are, unhappily, too often beyond his control. Extravasation of urine illustrates the same subject surgically. Death is inevitable if the urine cannot be expelled, and the bursting of the conduit behind the obstruction is the best natural effort to obtain relief. The

surgeon's early intervention may prevent this decisive step ; and even its disastrous consequences are accessible, and their fatal issue may be averted by timely aid.

On passing in review the various diseases to which the human frame is subject, how few there are in which elimination does not play a more or less conspicuous part, where a natural curative effort is established. As zymotic diseases are essentially blood poisons, the phenomena which characterise them are the accompaniment or expression of the effort to eliminate the poison. Whether the germ theory or presence of micro-organisms be the real explanation of these specific and communicable poisons or not, there can be no doubt that the blood ultimately distributes them throughout the system ; and it falls on certain selected organs, especially the skin and mucous membranes, to suffer the penalty of having to discharge them. That such is the case is sustained by the fact, that the gravest cases are those in which the local manifestations are mild ; and that the dose of poison is sometimes sufficient to destroy life, by its action on the nerve-centres, before any eliminative effort is made.

It is difficult to evade the conclusion that many cutaneous eruptions are eliminative. Their behaviour seems to indicate that such is the case ; for they appear and retreat with varying conditions of health ; and their presence is often associated with relief from some other ailment, as their suppression is the signal for its development.

In like manner many affections of the mucous membrane are eliminative. Diarrhœa rarely occurs in a healthy mucous membrane, unless for the removal of some source of irritation ; and for this reason it is far more judicious to accept nature's suggestion and to help her by an aperient, than to attempt to foil her efforts by astringents ; unless, indeed, the flux continue after the removal of its cause. The mischievous effects of repletion are often obviated by diarrhœa, or by timely hæmorrhage. I watched for many years the case of a large consumer of animal food, who was kept in tolerable health only by periodical attacks of diarrhœa, of a severity which would have prostrated most other persons.

Cholera must be viewed in the same light ; the poison, whatever it may be, appeals especially to the alimentary canal

for its removal. But here we have an illustration of the severity of the remedy proving so often fatal : therefore the eliminative treatment, though sound in principle, becomes more than questionable in practice : we must control instead of stimulating nature's energetic action, and endeavour to tide over the operation and more gradual expulsion of the poison. I should have more confidence in appealing for help to the skin by "packing" in hot wet sheets, hoping thereby to relieve the intestinal congestion.

Influenza, and even common catarrh, exemplify eliminative affections of the respiratory surface. Epidemic influenza seems to depend on certain atmospheric conditions, not necessarily associated with temperature ; and the constitutional disturbance accompanying an attack is suggestive of some poison circulating in the system, of which the catarrhal flux is the elimination. The same sometimes may be said of ordinary catarrh, for I think there can be little doubt that exposure to vicissitudes of temperature or moisture of the atmosphere are not to be solely credited with all the severe colds that are caught. In some instances periodical fluxes from the respiratory mucous surface are evidently a relief to the system ; and in a very considerable proportion no efficient reason can be assigned for these attacks. Possibly the presence, in excess, of ozone in the atmosphere may account for many of these respiratory affections. The attack is sometimes so sudden that it would seem as if the sufferer had passed through a current of poisoned air. I remember, many years since, experimenting on myself in a way that caused me much subsequent inconvenience. I was watching the operation of a machine for generating ozone, and had the curiosity, or rather foolish temerity, to breathe the product for a few seconds. The result was a very severe catarrh, which affected not only the nasal membrane, but the throat, eyes, and ears, and proved both prostrating and persistent. A bright sun with an east wind is generally prolific of catarrh, and this is an atmospheric condition favouring the evolution of ozone. No doubt irritation of a mucous membrane, by whatever means, may produce a copious and sustained secretion : but this cause operates very much as does a poison, by disturbance in the balance of the circulation, and is treated, if left to nature, in the same

way. The same is the case with serous and synovial membranes when subjected to similar disturbing influences ; but this is a branch of the subject which will be considered more appropriately farther on.

The progressive softening and ulceration attending the later stages of tubercle must be regarded in the same light as eliminative. Thus tubercular gland abscess and caries of bone are naturally cured, and we are led to believe that tubercular phthisis, if localised, is similarly curable, even though abscess cavities in the lung exist.

The phenomena attending gout and rheumatism are similarly characterised. In both, especially the former, the attacks are, in many cases, irregularly periodical ; the system becomes charged to overflowing with the poison, which must find some vent, by local expenditure ; subsequent immunity for a season being the compensation for the suffering : yet many a distorted hand and foot bear lasting testimony to the activity and earnestness of the eliminative effort. Urinary calculus may be included in the same category : and here the surgeon's aid is required to complete that which nature has begun but cannot finish.

Secondary syphilis partakes of the same character, and if mercury and iodine are to be credited with all that is claimed for them in this stage of the disease, when nature is exerting herself to eliminate the poison, I presume we must attribute the beneficial result to the expulsive power of a new poison introduced into the system ; which appears, indeed, to be the most rational explanation of the agency of mercury in the primary disease : one poison kills the other ; under certain conditions they cannot co-exist.

I do not say that cancer is eliminative, but we have no conclusive proof that it is not so. It seems more than probable that there are two distinct agencies operating in the evolution of this disease : one, which is systemic, in the disposition or tendency to so-called cell-production ; the other local, in which the attractive power of some special organ or tissue is exercised to determine its localisation : unless, indeed, we assume that this cell-growth is due *exclusively* to the reproductive property or proliferation of the localised cells, without the operation of any general or distinct influence. But this

cannot be established by observation ; and there is much in the history of cancer which is opposed to this theory. If, then, the disease be not entirely local in its origin, it may express an effort nature is making to rid the system of something noxious, by the development and local deposition of a low form of cell-growth, which seems incapable of further evolution. But this is, of course, mere speculation.

Dyspeptic disturbances of various kinds manifest the eliminative disposition in their different phases. It is scarcely necessary to particularise these, which are both vital and chemical ; and, though kindly meant, are productive of much discomfort to the sufferer. But it is very much his own fault if he fail to avail himself of the friendly suggestions, as to abstinence and regulation of diet, which this discipline is designed to inculcate.

Idiopathic erysipelas and carbuncles are likewise probably eliminative inflammations, occurring, as is generally the case, in a depraved condition of the system ; and the expediency of endeavouring to suppress their development is, at the least, questionable, as we cannot have much confidence in the elimination of the poison by any other channel. If this suppression can be accomplished by treatment in anthrax, whatever may be the pathological explanation of its origin, the usual result is a renewal of the specific inflammation in the neighbourhood, in probably increased intensity and with aggravated suffering. The local treatment in each case should be palliative and soothing, and special attention should be directed to correcting any functional derangement, and to supplying, but with discretion, the needful support. In the surgical management of carbuncle nature's indications should not be anticipated, except in rare cases of extreme and protracted suffering from tension : the small ulcerated apertures may be enlarged to facilitate the discharge of sloughs ; but large incisions are generally to be deprecated.

Pyæmia is essentially eliminative when time and opportunity are afforded. The poison, whatever it is, may be speedily fatal, as in some zymotic diseases ; and, unhappily, pyæmia exemplifies the fatality of the eliminative effort, when some vital organ is selected as the seat of purulent deposit. A peculiarity of this dreaded disease is, that the mischief is usually

generated within the body and not introduced from without ; a circumstance which, as it indicates a disposition to initiate the evil, implies also a preparedness to amplify it by organic fermentation, and thus to defy anticipatory or present treatment. The most rapidly fatal cases, in my experience, have occurred most unexpectedly. It is prudent and safe to encourage any tendency to the localisation of purulent deposit, whenever it may manifest itself in a favorable locality. Occasionally we witness instances of purulent deposits transferred from, perhaps, some distant part, and unattended by the constitutional disturbance which characterises pyæmia. The rapid healing of such abscesses is a test of their eliminative nature ; for they are unaccompanied by destruction of tissue, or any but mechanical disintegration of the textures, usually superficial, in which they are formed.

Many animal poisons, such as have their source in dissecting wounds, are often eliminated by the arrest of the poison in the guardian lymphatic glands, which thus sacrifice themselves and suffer disorganisation for the general weal. Such an issue is to be desired ; for if the poisons pass these glands unchallenged, the result is often fatal from the general contamination of the system.

One further and striking illustration of this subject may be adduced ; it is that of organic inflammation, especially of the lungs, in certain pathological conditions of the body—it may be kidney mischief, or gout, or some allied disease—in which the inflammation occurs without any other assignable cause. This would seem to be the explanation of many cases of pneumonia and bronchitis. Some act of elimination is accomplished ; and if the patient recover, it is generally without leaving any permanent damage to the affected organ.

It is not improbable that some nervous affections are but the expression of an effort to obtain relief, which bears no fruit that we can recognise, unless it be that the battery is overcharged and thus disburdens itself.

The power of resisting infection, usually attributed to individual insusceptibility, is probably often due to early eliminative energy, before the poison has mingled with the circulation. This may explain the various effects in different persons exposed to the same infecting influence ; as it is by no means the

robust whose immunity is most marked. It is not so much a question of the dose of poison received, or perhaps even of its zymotic tendency in the recipient, as it is of its partial or complete elimination, before it manifests its presence by the usual external signs and constitutional disturbance. But we know very little of the explanation of these observed facts, and still less of the way in which immunity from a second attack is secured by the first infection, or how protection is afforded by inoculation with a milder poison of the same nature. The facts are of great practical value, and may be far more largely utilised than at present, even though the secret of their subtle agency remain unrevealed.

There are, of course, many morbid conditions which manifest no eliminative disposition : but they are, for the most part, such as appeal directly to the nerve-centres, and thus, as it were, paralyse the sources of organic and animal life. Of this class are tetanus and hydrophobia, and some other spasmodic diseases ; and the more deadly vegetable and mineral poisons. Also many new or hypertrophic growths and most atrophic affections ; organic disease resulting from impairment of function or the converse, are amongst those pathological conditions for the relief of which nature can exercise no eliminative effort, but must resort to other, if any, means of relief.

But these means are not expended, though elimination be unsuitable or impracticable ; and it will be interesting to examine and exemplify other natural measures employed in the cure of disease. Many of these may be conveniently classified under the following headings, and yet leave this prolific subject unexhausted. Increased or diminished functional activity ; reformation or new formation of tissue ; and partial removal by death.

Increased Functional Activity.—In increased functional activity we recognise another and comprehensive natural method of healing, especially in the repair of lesions, whether from disease or injury. The vaso-motor nerve-centres are in free telegraphic communication with the whole system, and issue the needful orders when the alarm of any disturbance is given. When the area of the lesion is limited in extent, the vascular activity is also localised ; but more serious mischief rouses more general activity, and thus creates constitutional

disturbance of more or less intensity. In some instances the shock of injury paralyses, for a time, the organic nerve-centres; and the recovery may be tardy, or the reaction may be excessive: in other cases there is no recovery, or the shock may be immediately fatal, as when a severe blow is received in the epigastrium or neck.

Augmented activity is manifested, physiologically, in many and various ways; as in hurried respiration or circulation during exercise; in stimulation of different secretions, notably that of the stomach during digestion; and wherever and whenever a claim is made for increased exertion, at the bidding of normal or abnormal incentives. Pathologically it is witnessed in the anastomotic expansion of the collateral circulation, after obliteration of a large arterial trunk; and in the various stages of the healing of a wound. One practical lesson, in relation to pathology, which a thoughtful consideration of these self-evident illustrations teaches us is not unimportant; viz. that functional activity, if abnormally and repeatedly excited tends to structural change, and thus often lays the foundation of organic disease.

Diminished or suspended Functional Activity—physiological rest—is also an important factor in the cure of disease or injury. The surgeon has special need to lay to heart the lessons taught by nature in this respect; for it is difficult to draw the line of distinction between functional and mechanical rest. Too little heed is paid, in some instances, to the natural craving for abstinence from work. How often, in sickness, is the stomach taxed to digest food which it loathes, and which it absolutely refuses to assimilate; and how frequently and unnecessarily is it irritated and worried with stimulants and nauseous drugs, when all that is asked for is rest, and time to recover functional energy. We are accustomed to ascribe much to augmented activity of the absorbents in the removal of abnormal or hypertrophic growths; whereas, in many instances, this result is attributable rather to suspended or abated activity of deposition. How important is the enfeebled action of the heart in arresting hæmorrhage; how essential the arrested function of the lacerated lung, in fractured rib, when air is pumped into the pleura until compression secures physiological rest. That periodical

repose is the normal rule finds an exemplification in every organic as well as animal function. We work by day and sleep by night, when brain and muscle alike rest ; the digestive organs have their active duties and intervals of repose : and so even the untiring heart and lungs, between each beat and respiration : and the greater the exhaustion the longer the exemption from toil that is needed for recuperation. There are, doubtless, occasions when this exhaustion is perilous, and the enfeebled organic life requires stimulation : but the watchful practitioner can rarely mistake the fruitless effort, for the craving demand for rest. The critical prostration must be tided over, or the waning power sustained by suitable stimulants or nutriment, until the normal function is restored.

Re-formation or new formation of tissue is needed wherever a lesion is accompanied with loss of texture. It is interesting to notice that such reproduction is not necessarily identical with the original tissue which has been severed or destroyed, but that it usually answers the same purpose functionally. I say usually, because the elastic and other properties of the skin and its subcutaneous connexions are never perfectly restored after loss of texture.

It has been remarked that the lower the organisation the more perfect the reproduction : I should be disposed to say rather, the more important the texture which demands renewal the more perfect that renewal. Such appears to be the case with two important structures, bone and nerve ; and the reproduction of blood-vessels is a remarkable illustration of the same principle. In the case of muscle, fibrous union does not interfere with its utility : and in severed tendon a long time is required for actual reproduction of identical tissue and continuity of fibre, though this is ultimately accomplished. As regards nerve, the renewal of function, which of course implies reunion of tissue, is very remarkable, as each severed fibril must, it would seem, resume its continuity ; or there must exist some unexplained manner in which the functional readjustment is arranged without such continuity : and recent evidence has been supplied that, even after a long interval, the original function of a divided nerve may be perfectly restored, by freshening and adapting its severed and perhaps widely separated ends. In union of a broken bone

new material is copiously or sparingly deposited, according to the requirements of the case; but all redundancy is subsequently removed, when consolidation is complete. The plastic wall which is built around an abscess, during its formation, is a temporary arrangement for the protection of surrounding tissues. The deposit of clot in the interior of an aneurismal sac is a natural curative tendency, which is occasionally effective. The curved shafts of rickety long bones are fortified in the concavity of their curves by osseous deposit. These are familiar examples of this branch of our subject. Physiologically, uniformity in growth is an essential condition of health; any deviation in excess or deficiency of textural ingredient is inconsistent with perfect health.

But nature also kills to cure. *Partial sacrifice by death* or some gentler means is a frequent and necessary step in the preservation of life in the mass. Molecular death is, indeed, inseparable from our existence. It accompanies us through life, is an essential condition of health, and never fails till functional activity ceases, and the laws of inorganic life resume their sway. But molecular death occurs in other and more palpable ways than in this physiological form, as exemplified in ulceration. And this is often an essential precursor of renewed health, being rendered so by previous injury or disorganisation of the tissues or parts to be cast off. The gradual separation of dead from living structures is an example of molecular death accompanied by repair. The natural cure of a strangulated knuckle of intestine is attained by the same process; and we imitate nature in strangulating tumours or nævi, with perfect confidence in her ability and will to cast off the noxious part and repair the breach. In like manner, when the vitality of a limb can no longer be sustained, whether from senile vascular deterioration or other causes, a natural amputation is performed. Absorbent activity is illustrated by the rapid removal of fluid from serous or synovial sacs; and the solid products of morbid action are also withdrawn by the same agency, in addition to their being starved of their supply. The influence of *pressure* in promoting absorption, and possibly also in reducing supply, is exemplified in many natural operations, such as the thinning of the walls of an abscess, the penetration of bone by pus or an aneurism and here

again we have been taught a valuable lesson in the mechanical command of vital action—a control which we cannot afford to ignore, and which might be utilised more largely, if more thoroughly recognised and carefully studied.

Compensation for natural defect, or for mutilation from disease or injury, is as frequent as is practicable; for, of course there are many cases in which there are insuperable physiological or mechanical obstacles, which preclude the possibility of any such arrangement. This principle is illustrated in the hypertrophic growth of muscle to overcome obstruction, as in the muscular coat of the bladder in enlarged prostate or permanent stricture; or in the thickening of the ventricle in valvular disease of the heart. Other tissues also become hypertrophied to resist pressure, as the ureters when subjected to long-continued distension. Pressure or friction also produces thickening for protection, as in the cuticle of the hands and feet. The osseous deposit in the concavity of rickety long bones exemplifies the same principle; as do the remarkable spinal tortuosities often noticed in deformities of the pelvis and vertebræ, so as to preserve, as far as may be, the perpendicularity of the column as a whole. Though some of these compensatory developments can scarcely be regarded as sanitary in their effect, they must, nevertheless, be considered such in design.

In anatomy and physiology, and indeed throughout the animal kingdom generally, we meet with compensations at every turn: and these are truly such, in effect as well as in design. But it must be borne in mind that nature does not work miracles; all must be conducted in accordance with her own laws, and in strict subservience to them. Not only are animals endowed in relation to their different acquirements, but certain inherent defects have their compensation in other special developments; the feeble being thus protected from the overbearing tyranny of the strong, and enabled to find means of subsistence when surrounded by foes. Swiftness of foot, keenness of sight or scent, resemblance in colour or form to surrounding habitats, agility in climbing, are a few of these special attributes which contribute to the security of their owners, or to their facility in obtaining their food.

In anatomy the construction of the spine is a wonderful

exemplification of the compensatory principle, in vanquishing mechanical obstacles which seem insurmountable, and in combining functions which would appear irreconcilable. A column is required which shall have strength, resisting power against external violence, competency to support a heavy superincumbent weight, and qualified as a lever for strong muscles to sway in various directions, being withal flexible and elastic; and which, moreover, has to be entrusted with the guardianship of a vital organ that traverses its whole extent. The immunity from injury of this column is a measure of the perfection of a piece of mechanism which is capable of fulfilling these varied offices; sources of weakness which necessarily accompany the perfecting of one function being supplemented, without clashing or interference, by specially adapted complementary arrangements.

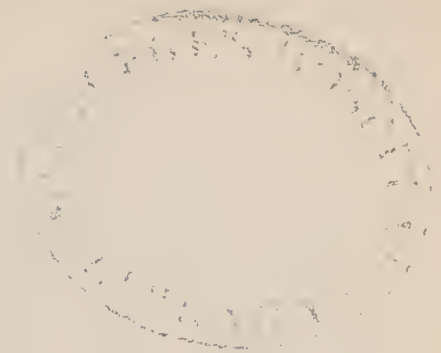
A less complex but still striking illustration of compensatory development is presented in the mechanism of the shoulder-joint. Freedom of movement is an imperative necessity, and not less so is security from displacement. The former desideratum is realised by combining a very shallow and limited articular cavity with an expanded hemispherical convexity on the head of the humerus; and these surfaces are surrounded by a fibrous capsule of such laxity as to be of little if any avail, except such as is due to atmospheric pressure, in preventing dislocation. Moreover, this joint, so framed as to be subject to the least possible restraint, is moved by powerful muscles, acting on a lever at a considerable distance from the fulcrum; for such are the deltoid, great pectoral and latissimus dorsi muscles. But these arrangements, though admirably calculated to favour unlimited mobility, so seriously compromise the safety of the joint, that, without some compensatory provision, it would be liable to dislocation at every movement. We find such provision chiefly in the mode in which the capsular muscles are clustered around the articulation, in the strength and resistance of their fibrous insertion, and in the circumstance of their fleshy texture being parallel to that of the larger muscles, synchronously with which they act; and whereby they neutralise the tendency of the more powerful muscles to produce dislocation, by holding the articular surfaces in contact. The position of the long tendon of

the biceps is a further security : but there is another factor of great value, and that is the mobility of the scapula, which follows the humerus in all its more extended movements, and thus continually presents its shallow cup to the head of the long bone.

The presence of inter-articular cartilages and ligaments in joints, especially in the knee, exemplify the same principle. And the augmented muscularity of the arteries, as they recede from the heart, is a striking instance of compensation ;—the waning influence of the central pump demanding some equivalent to sustain the circulation, where elasticity would be no longer available. And this physiological fact may be followed into many pathological sequences, of vast importance to the medical practitioner.

It is unnecessary to multiply these few and merely suggestive illustrations ; indeed, it may be asked why such truisms have been thus strung together. I can only reply by the expression of a hope that, here and there, a reader may be induced to look at the subject of this paper with more thoughtful interest than heretofore, and to have more confidence in nature's resources ; and, I may add, to be more willing to accept her teachings and to profit by them.

(To be continued.)



MEDICAL CASES

IN WHICH

TWO OR MORE ANEURISMS WERE
PRESENT.

By SEYMOUR J. SHARKEY.

THE presence of more than one aneurism in a patient is recognised by surgeons as a not infrequent occurrence. Thus, Holmes says, "The frequent occurrence of aneurisms in both popliteal arteries strikingly proves the origin of the affection in disease of the arterial system; the same thing is even more strikingly shown by a case which is recorded of the formation of a popliteal aneurism in one ham while the man was in bed for the treatment of an aneurism in the opposite ham. In extensive disease of the arteries a great number of aneurisms may form, constituting what is called the 'aneurismal diathesis.' "

Again, Erichsen writes thus, "Aneurisms, though usually single, are not very infrequently multiple. There may be more than one tumour of this kind in the same limb; thus the iliac and femoral arteries on the same side may both be affected. In other cases corresponding arteries in opposite limbs are the seat of aneurism. Thus the two popliteals are not infrequently found to be the seat of this disease, and occasionally an aneu-

rism may exist in one of the limbs, and others in the arteries of the interior of the body. Numerous aneurismal tumours are at times met with in the same person; thus Pelletan records a case in which no fewer than sixty-five were observed."

Surgeons' experience in this matter is mainly derived from cases where the disease affects the vessels of the limbs; that of physicians mainly from cases of aneurism of the aorta, and more especially of the thoracic aorta. Those physicians who are pathologists, or who, at any rate, see a large number of post-mortem examinations, no doubt know that what applies to aneurism of the peripheral vessels applies also to aneurism of the aorta; there may be several such tumours in the same case. But at the bedside such an occurrence is not usually referred to, and, I think, not usually appreciated.

It is for this reason that I have thought it worth while to give a short account of a few "medical" cases where more than one aneurism has been found at the post-mortem examination.

CASE 1 (in which there were two aneurisms of the aortic arch).—J. S—, æt. 46, bricklayer, was admitted into St. Thomas's Hospital, under the care of the late Dr. Murchison, on February 12th, 1877. He had had an attack of rheumatic fever at the age of nine years, and had broken some ribs on his right side in the early part of 1876, but otherwise he had been a healthy man. In August, 1876, he was taken ill with pain in the right side of his chest, cough, and shortness of breath. He was still able to do his work for a month but had then to give it up and take to his bed, which he had hardly left since then. On admission, his breathing was so bad that he could not lie down, his voice was weak and somewhat hoarse, and gurgling could be heard in the trachea.

Respirations were 28 in the minute. Pulse 84, rather weak but regular. He had no dysphagia, vomiting, or inequality of pupils, but he suffered much from pain in the right side of the chest and he slept badly.

On examination of the chest it was found that the air entered badly and noisily on both sides, and that less entered the right than the left lung. No signs of cardiac or pulmonary disease were discovered. Just to the right of the sternum, in the first and second intercostal spaces, was a small area of partial

dulness and slight pulsation. The right carotid pulse was a little weaker than the left.

He remained a long time under treatment in the hospital until the increasing pressure on the right bronchus gave rise to disease of the right lung which proved fatal.

Post-mortem examination, December 20th, 1877.—A saccular aneurism, of the size of a hen's egg, was found projecting from the ascending aorta, in the position where dulness and pulsation were discovered during life. It was superficially situated and did not press upon arteries, veins, or any important structures. For some time nothing was detected which could account for the physical signs and symptoms present during life; but soon a second aneurism, slightly smaller than the other, was found projecting from the posterior aspect of the transverse portion of the arch of the aorta, a prominent ridge separating the two perfectly distinct sacs. This aneurism exerted direct backward pressure upon the trachea and right bronchus, leaving the left unaffected. The sacs contained recent, but no old clot. The internal surface of the aorta generally was the seat of scattered patches of endarteritis deformans, but very little calcification had taken place.

The left lung was healthy; the right everywhere adherent to the chest walls, and consolidated in its lower part, while all the bronchi were filled with thick yellow pus, such as the patient expectorated during life.

The larynx was healthy; the heart somewhat hypertrophied.

In the liver was a small gumma of the size of a large pea, and some scars were seen upon the capsule of the organ. The other organs were healthy.

CASE 2 (in which there were two aneurisms of the thoracic aorta).—W. P—, æt. 42, shoemaker, was admitted into St. Thomas's Hospital, under the care of Dr. Ord, on March 5th, 1878. He had only been ill eight weeks, and said that up to this time he had been a healthy man, and had neither suffered from syphilis nor from any other complaint. He had four children living between the ages of seventeen and thirteen years, and they were quite healthy; two others had been born dead, and his wife had had two miscarriages. The first symptom of anything wrong which he noticed was pain in his left

side—constant, acute, stabbing, and liable to exacerbations ; this was accompanied with cough and expectoration of yellow phlegm. His breath was short on exertion, and he had lost much flesh.

When admitted into the hospital he was in intense pain and could not lie upon his left side but coiled himself up, face downwards. The pain was referred to the lower part of the left side of the chest, and seemed to be in the course of the lower intercostal nerves.

The physical examination of the chest showed the cardiac apex beating in sixth left interspace, and although the sounds could not be said to be altogether natural, there was no definite evidence of heart disease.

Just to the right of the upper part of the sternum, and occupying the right half of that bone on the same level, was an area of dulness where the heart sounds were very loudly heard, but there was no pulsation or murmur. No difference was discovered in the radial or carotid pulses, or in the pupils on the two sides. Loud tracheal breathing was heard in the upper part of the chest. The base of left lung posteriorly as high as the angle of the scapula was absolutely dull, and gave other evidences of pleural effusion. At the limits of the dull area friction sounds were heard.

The temperature at night was $100\cdot8^{\circ}$ F., in the morning $98\cdot5^{\circ}$ F.

The urine contained no albumen.

Soon signs of marked pressure on the left bronchus appeared, the air entering very badly into that lung, and the breathing there being loud and bronchial. At the same time the dulness at the upper part of the right chest increased in extent and the patient had frequent bad attacks of dyspnœa, especially after food. Later still, indistinct pulsation without murmur was found over the dull area anteriorly, and the left radial and carotid pulses were found to be feebler than the right. The patient was kept fairly comfortable by injections of morphia.

On May 2nd it was found that the whole of the left side had become absolutely dull from top to bottom ; the physical signs in the lower part of chest still appeared to be those of fluid, those in the upper of solidification of the lung. The sputum was bronchial and tinged with blood. The patient for some

time past had perspired somewhat profusely, especially about the head and neck.

On May 23rd he was found dead in bed. The temperature throughout was moderately raised at one period of the day and normal at another.

Post-mortem examination.—The heart was found pushed somewhat down, and there was pericarditis, the pericardium containing six ounces of brownish fluid. A hard mass was seen projecting to the right of the sternum below the clavicle at the spot indicated by percussion dulness during life. This proved to be an aneurismal sac, to a great extent solidified by firm layers of fibrin. The left lung was everywhere adherent to the chest wall, and solidified by pneumonia throughout, and gave exit on pressure to a large quantity of pus which was free from fœtor. There was an empyema occupying the space between the lung and the diaphragm. Along the spinal column, eroding the vertebræ, and pressing on the left bronchus, was a large aneurism of the descending thoracic aorta; it was filled with fluid blood and soft clot, and contained but little firm laminated clot.

The great pain on left side, the gradually increasing dulness in that lung, the physical signs of a non-pulsating tumour to the right of the upper bone of the sternum all suggested during life the presence of an intra-thoracic new growth.

This case has been already reported by Dr. Ord in 'St. Thomas's Hospital Reports,' vol. x, p. 206.

CASE 3 (in which there were two aortic aneurisms).—F. H—, æt. 33, joiner, was admitted into St. Thomas's Hospital, under the care of the late Dr. Murchison, in February, 1878. He had enjoyed good health, and had never been in the army, but he had had syphilis at the age of twenty-three. For four or five months before admission he had been troubled with pain in the chest, bad cough, shortness of breath and insomnia, and all these troubles had been gradually getting worse.

When he came into the hospital he referred the pain to the upper part of the sternum, the top of the right side of the chest, and the interscapular region. He was unable to lie on the left side, his look was anxious, and his breathing somewhat difficult.

His pupils were equal, and the left radial and carotid pulses were stronger than the right.

On percussion, dulness was found to the right of the upper part of the sternum, and there was a faint systolic murmur and indistinct pulsation over the same region. There was no cardiac murmur or hypertrophy.

The respiration in left lung was feebler than in right.

Urine, sp. gr. 1015, pale, clear, no albumen.

At first he had some attacks of dyspnœa, but with absolute rest and a prescription containing Pot. Iod., gr. xxx, Tr. Opii, ℥xv, Infl. Gent. Co., ʒj, three times a day, he became comfortable, and remained under much the same treatment in hospital for more than a year. He then went out, and for some months was able to work as an overseer, but getting ill again in the same way he returned to St. Thomas's in March, 1880, and after a while died.

At the post-mortem examination a large aortic aneurism was found rising from the right side of the arch on the cardiac side of all the vessels which are given off, and a second, as large as a lemon, was found below it projecting into the pericardial sac. The latter had been obliterated, and solidified by deposition within it of very firm layers of quite decolorised clot. There was no valve disease of heart and no hypertrophy. The apex of left lung was breaking down.

CASE 4 (in which there were two aneurisms of the aorta).—C. R—, a woman of thirty-seven, was admitted into St. Thomas's Hospital, under the care of Dr. Stone, on August 18th, 1878, and died on August 21st.

She was a well-nourished person, but had suffered from pain after taking food for months. It came on immediately after swallowing, was sharp, referred to epigastrium, and accompanied with a dull aching pain in the back. She had never had hæmatemesis or melæna until the night before admission, when she was suddenly seized, without warning, with vomiting, and she stated that she brought up a quart of bright blood.

On admission her face was pale and anxious, her lips blanched. The pulse was weak, regular, 90 in the minute. Respirations 24, easy. Tongue was covered with a thick

white fur, and the bowels were confined. The abdomen was not distended, but there was marked tenderness just below the left costal arch, about three inches from the sternum. She also complained of pain and tenderness beneath the angle of the left scapula. Heart, liver, spleen, all appeared to be normal.

On August 19th, at 3 a.m., she was very blanched, in a cold perspiration, collapsed, and with pulse small and weak. She had only brought up small quantities of blood from time to time. The temperature was 97·6° F. Ice had been given by the mouth and applied externally, and ergotine in six grain doses injected subcutaneously. Nutrient enemata of beef tea, wine, and brandy, had been administered, and feeding by the mouth had been stopped. Under this treatment she picked up a little, but though she had but slight further hæmatemesis she passed dark blood by the bowel; moreover, she expressed her belief that her "stomach was full of blood."

She sank gradually and died on the 21st.

Post-mortem examination (August 22nd).—Body that of a fine, well-nourished woman, with thick panniculus adiposus, but very blanched. The heart and lungs were free from disease. The stomach was completely filled with a large bright red blood-clot, which had taken the exact shape of the organ. Nearly the whole intestinal canal below was filled with dark blood. The stomach itself was quite healthy. On tracing up the œsophagus a small aneurism was found opening into it. The orifice from which bleeding had occurred was larger than a shilling, and blocked by a firm clot which projected into the œsophagus, and was situated just at the junction of the transverse and descending portions of the aortic arch. It was a saccular aneurism, about the size of a walnut, which left the calibre and blood-way of aorta unimpaired. It was partly adherent to the vertebræ, and towards the pleura its walls were very thin. The internal surface of the aorta generally was studded with small superficial patches of atheroma, a few of which were calcified. Just above the aortic valves was a second small aneurism about as large as a pea.

Between the capsule of the liver and the under surface of the diaphragm were many firm adhesions which could not be broken down. The spleen was also adherent to the parts around, and soft. The kidneys were pale, and on their surface

were large atrophic depressions, where the capsule was continuous with cicatricial tissue, which penetrated deeply into the renal substance, a condition which occurs in syphilis.

CASE 5 (in which there was an aneurism of the heart and another of the aorta).—W. N—, æt. 44, came under my care as an out-patient and was then admitted into the hospital, under Dr. Harley, on January 3rd, 1884. The only illnesses he had ever had were scarlet fever and syphilis, about seventeen years previously. He was a strongly built man, a bricklayer by trade, and had enjoyed the best of health up to the last eighteen months. Shortness of breath then came on and obliged him to give up his regular work. He had cough and pain from epigastric region through to the back, which was not constant.

On January 2nd, the day before he became an in-patient, it was found that the cardiac dulness was not much increased in area, and the apex beat could not be detected. On a level with the fifth left interspace, close to sternum, some pulsation was felt, and a localised systolic whiff was heard. The carotids and radials were equal in force and volume. The breathing in the left lung was deficient. The patient had great pain in the epigastric region, and bulging and tenderness were present over the liver. There was no dropsy, but great dyspnœa.

During the rest of his life, which terminated rather suddenly on February 11th, 1884, he had gradually increasing shortness of breath and dropsy, he became deeply jaundiced and had frequent attacks of hæmoptysis. The veins in his neck swelled, he suffered from delirium with delusions, his urine became scanty and concentrated, and towards the end extreme venous obstruction was indicated by the appearance of cutaneous hæmorrhages.

At the post-mortem examination all the organs were found greatly congested, and there were many hæmorrhagic infarcts in the lungs. The heart weighed thirty-nine ounces; the mitral orifice measured six inches, but the valve was competent to close it. The aortic valves were evenly thickened but allowed no regurgitation. A round aneurismal sac about the size of a tangerine orange occupied the apex of the left ventricle, but did not form a clearly defined projection externally, though it made the apex of the heart very large and rounded. The

pouch, however, was very evident from the inside of the heart, the endocardium forming the floor of it, and the muscle having disappeared to such an extent that at one spot the sac was not thicker than cardboard, and was formed by the fusion of the endocardium and pericardium. Very firm, laminated, brown clot filled the aneurism and was with difficulty removed, laying bare below it the well preserved but thickened endocardium.

The aorta was very atheromatous but no calcification had occurred. At the junction of the transverse and descending portions of the arch a small aneurism filled with soft clot was found lying close to the left bronchus.

CASE 6 (in which there were four aneurisms of the thoracic aorta).—The patient was a man, æt. 78, who had been for many years employed as plumber in the hospital. As far as was known he was a steady man and had enjoyed good health. In the spring of 1886 he was under Dr. Mackenzie's treatment for bronchitis, and there were no murmurs, dulness, or other signs of disease of the heart or aorta. He was sent away to a convalescent home and died quite suddenly shortly after he got there.

At the post-mortem examination I found the mediastinal connective tissue in front of the heart solidified with effused, coagulated blood. This had invaded the cellular tissue in the neck and formed a pretty even layer between the œsophagus and trachea as far up as the pharynx. The left pleura contained a very large quantity of coagulated blood. The heart appeared to be comparatively healthy, and the pericardium contained the ordinary amount of clear fluid. No aneurism projected anteriorly, and there was no narrowing of trachea or bronchi or pressure upon the œsophagus; but nevertheless the aorta was in a very advanced stage of disease and was the seat of no less than four distinct aneurisms. One was in the ascending portion of the arch and projected upwards between the vessels arising from the transverse portion. Here its walls were very thin and had ruptured and so given rise to the effusion of blood in the neighbouring cellular tissue.

The second aneurism was in the transverse portion of the arch and was separated from the first by a projecting ridge of the

aorta. It likewise projected upwards but not nearly so far as the first.

The other two aneurisms were small globular projections from the descending limb of the aortic arch. One was adherent to and had eroded the vertebræ, and could not be separated from them without rupture of the sac. The other had indented the neighbouring left lung.

It is probable that the blood which filled the left pleural cavity came from a rupture in the aneurism which was adherent to the vertebral column, but this could not be made out with certainty.

The whole of the thoracic aorta was the seat of endarteritis deformans. The other organs were healthy.

CASE 7. *Aortic, innominate, and popliteal aneurisms.*—G. C—, æt. 35, musician, was admitted into St. Thomas's Hospital under the care of Dr. Stone on December 9th, 1878. He had been many years in the army, and had jungle fever in India, and in 1864 he had syphilis. Later he had periostitis, and in April, 1878, he was in St. Thomas's for a popliteal aneurism which was treated and cured with Esmarch's bandage. In August he complained for the first time of pain in the upper part of the chest. I saw him for this, and looking upon it as periosteal I treated him with iodide of potassium. The pain went away and returned twice, and then persisted. About three weeks before admission he got much worse, being engaged every evening in playing the clarionet at a theatre. He had no shortness of breath, but pain in the upper part of the sternum, down the inner side of right arm, in the right shoulder-joint, and up the right side of the neck; he had also had difficulty in swallowing for fourteen days. He did not look in much pain, but he was unable to lie on his left side, and he had insomnia.

The right pupil was larger than the left, and the right carotid and radial pulses very small compared with those on left. The trachea was not displaced, but the air entered left lung better than the right.

Dulness, pulsation, and a systolic murmur were detected over the upper bone of the sternum and to the right and left of it. The murmur was heard on both sides of the chest in

front, while pulsation could be heard with the stethoscope almost all over the right side of the chest, back and front. There was no cardiac murmur.

The patient got great relief from rest and injections of morphia, but towards the end of December he began to have fits of dyspnœa, recurring about three times a day. The pain on right side became very severe, swallowing very difficult, and the veins below the right clavicle very distended, and he died gradually comatose on January 1st, 1879.

At the post-mortem examination no disease of much importance was found except the old, cured, popliteal aneurism, an innominate and aortic aneurism, and what appeared to be a small gumma in the capsule of the liver.

The aortic aneurism was more or less globular, and occupied the whole circumference of the ascending portion of the arch, but it stopped short of the aortic valves which remained competent and healthy, as did the mitral. The innominate aneurism was globular and came off from the inferior surface of the vessel; a small portion of the artery at its origin from the aorta remained unaffected.

Near the bifurcation of the trachea the aneurism had by its pressure caused some absorption of the wall of the air-tube, but had not flattened it.

ON SOME CASES
OF
NEURORAPHY OR NERVE SUTURE.

BY
SIR WILLIAM MAC CORMAC.

DANIEL WURZ is said to have been the first to suture a nerve, but Laugier and Nélaton first described the operation, which was performed by them in Paris in the year 1864. The results in the first case were so remarkable, sensation having returned after so short an interval, that doubts were even cast upon the accuracy of the statements made.

Nerves may require suture after division occasioned by an accident or during the course of an operation.

Nerves which have been accidentally divided, such as the musculo-spiral on the outer side of the arm, the median, ulnar, and radial nerves, or even so large a nerve as the sciatic itself, have been successfully sutured and the lost functions of the parts concerned thereby restored.

The conducting power of a nerve may not only be destroyed by division of its fibres but by severe contusion. The ends of nerves accidentally divided may sometimes unite together and their function be restored, but usually the ends retract, and if there be union it is of a fibrous, non-conducting nature requiring operative interference.

In contused wounds of nerves, as of the musculo-spiral against the bone from a blow, or the cords of the brachial plexus in dislocations of the shoulder, or from the inclusion of

a nerve in a ligature, the nerve-tissue, if restored at all, is reproduced more slowly than after complete division of the nerve; in most cases it is not reproduced. Excision of the bruised portion, therefore, and union of the cut surfaces by suture is a desirable practice.

The nerve-trunks in the extremities are in many places comparatively superficial and very liable to division in cases of accidental injury. They may be also unwittingly cut through during the performance of operations. The ulnar nerve has frequently been divided during the excision of the elbow-joint, the external peroneal nerve has been cut through in tenotomy of the biceps tendon. The musculo-spiral is frequently implicated in wounds near the external condyle of the humerus, and the median nerve in injuries of the forearm and arm.

The former fear of irritating the nerve by the introduction of sutures, occasioning tetanus, perhaps, and the impossibility of union taking place in suppurating wounds, have doubtless interfered with the adoption of a practice of nerve suture. The manner in which the divided ends unite together is not thoroughly made out. After simple division, if the ends be kept in accurate apposition, the axis-cylinders and nerve-fibres may unite directly together, a process of immediate union, but of course, the corresponding fibres and portions of nerve cannot be made to unite together. Union, however, probably most frequently occurs by means of granulation material which invades the divided ends, and occupies the space between the ends, and when these are kept sufficiently close together newly-formed nerve-fibres, which are probably formed from cells of the sheath of Schwann, connect the divided extremities. According to Wagner a limited portion of excised nerve-tissue may be thus reproduced. The time required for the regeneration of a nerve varies. It is shortest after simple transverse division of the nerve, in which there has been no loss of substance; longer if the injury be of the nature of a contusion, or there has been loss of substance. In favorable cases sensation generally returns in from eight to fourteen days, while the power of movement is restored at a considerably later date. Sensation always returns before movement, and generally more perfectly, the reproduction of

power of movement is often delayed or incomplete. The rapidity with which the nerve function may become restored in some of these cases, even where it may have been in abeyance for months or years, is surprising. I have seen in more than one case distinct sensation return to the part in less than twelve hours. Richet points out that after the division of a great nerve, and more especially the median, more or less sensibility may remain in the area of the distribution of the nerve, or may gradually return after a brief interval, even without any union taking place between the ends of the nerve. This has been explained in the arm by the numerous anastomoses which exist before the formation of new nerve-fibres in the interposed material has occurred.

The operation of suturing a divided nerve may be either primary or secondary, that is, performed immediately after its division or after an interval when cicatricial changes have taken place in the divided ends of the nerve. Suture of divided nerves is rendered more successful than it ever was before by the maintenance of aseptic conditions in the wound.

When a nerve-trunk has been divided, either in an accidental or a surgical wound, the ends should be immediately brought together and united by means of a sufficient number of points of interrupted suture, preferably of very fine silk. These are introduced through the corresponding margins of the sheath so as to bring the cut surfaces into accurate apposition. If the suturing of the edges of the sheath do not alone suffice it will be better to pass the needle deeply enough to include a portion of the nerve-tissue as well, a practice which does not entail unfavorable consequences. If the divided surfaces be irregular they should be cut transversely with a sharp knife. A deficiency of half an inch or more thus occasioned may be readily made good by gently pulling the nerve out from the adjacent parts.

Dr. Assaky ('Thèse de Paris,' "La Suture des Nerfs à distance") says: "Whenever there is loss of substance it is advisable to join the central to the peripheral extremity by means of catgut sutures, and even though the extremities of the nerve cannot be thus absolutely reunited, the presence of sutures produces excellent results and favours the formation of new nerve-fibres. Experiments on animals show that sutures

thus applied keep the nerve in a proper state of tension, lessen the space which divides the extremities, and hasten nerve regeneration. The cicatricial material along the track of the catgut sutures is richer in newly formed nerve-fibres than where no sutures are used.

When a considerable interval has elapsed since the division of the nerve and cicatricial changes have occurred in the wound the operation is more difficult. The divided ends retract, and an inch or even a greater interval may be found between them. They are involved in the cicatricial scar and difficult to discover. It is usually much more easy to find the proximal end as it is commonly enlarged and bulbous, like the terminations sometimes found in the nerves of a stump, and, like these, very painful and sensitive to pressure. The distal extremity, on the other hand, is atrophied and often lost in a filiform termination indistinguishable from the cicatricial mass surrounding it. Oftentimes the lower end does not correspond in position with the upper. These are difficulties which may be overcome by patient, careful dissection and an accurate knowledge of the anatomical relations of the parts.

When the ends have been fully exposed they may be drawn out sufficiently to meet without tension by stretching the nerve, then cut square off and sutured accurately together. The operation should be conducted antiseptically; antiseptic dressings are to be subsequently applied, and the limb fixed by plaster of Paris or other splints so as to place the parts concerned in a state of complete rest and relaxation.

The operation for exposing a nerve would be the same whether undertaken for the purposes of division, resection, suturing, or stretching. A correct anatomical knowledge of its relations and position is necessary, and an incision of sufficient length must be made directly over it. By means of this the nerve may be exposed lying in its sheath, when, as the occasion may demand, it can be drawn out and stretched, else divided, or a portion removed.

The intergrafting of a portion of a nerve of an inferior animal to replace an extensive loss of nerve structure will probably be too uncertain in its results to constitute a standard operation, but experiments made by Kawa would indicate that the grafting of the distal end of a nerve in such a case upon the

side of or into the trunk of an adjacent nerve may secure to it a supply of nerve force. Experiments on dogs are valueless on this point on account of the free nervous anastomoses found in these animals, and we must look for the solution of this question to the rare opportunities met with in the course of surgical practice on man. A case has been reported by Després where there was such extensive destruction of the median nerve as to preclude the possibility of approximating its ends. He therefore engrafted the distal end of the median on the trunk of the ulnar nerve. Fifty-four days after the operation the functions of the parts supplied by the median nerve were partially restored.

In another case in which it was necessary to resect the right ulnar nerve during the removal of a neuroma in a male patient, aged thirty-six years, the distal portion of the divided nerve was grafted on the trunk of the median. The sheath of the median was removed and the broadly chamfered end of the ulnar nerve laid in contact with it and secured by three fine catgut sutures. Immediately after the operation there was complete paralysis of the parts supplied by the ulnar. On the eighteenth day slight sensation returned along the ulnar side of the ring finger and there seemed to be some contractile power in the flexor carpi ulnaris muscle. Four months after the operation the patient could feel a slight touch on the ring finger; no sensation to touch was experienced in the little finger, but there was an increased warmth in it. The hand could be adducted with considerable vigour, but as yet there is no power over the terminal phalanges.

The evidence which these two examples furnish warrants a further effort in the same direction.

The following cases will serve to illustrate some of the remarks just made :

Suture of the ulnar nerve after division by a fragment of broken soda-water bottle six years before.—The patient, a young man of twenty-five, received a severe wound on the ulnar border of the forearm, about four inches above the wrist, from the broken fragment of a soda-water bottle which burst whilst he was in the act of opening it. The accident happened six years before he came under my observation. From the description

given the ulnar artery was also divided and the hæmorrhage from it recurred two or three times afterwards, causing much trouble in procuring its final arrest. The ulnar nerve, which is quite close to the artery at this point, must of course have been divided, for the patient immediately and completely lost sensation in the little finger and the ulnar border of the ring finger, and absence of sensation in these parts as well as in the ulnar border of the hand has persisted up till the time of his coming under my notice. The deep prick of a pin into the little finger is not felt at all; sensation on the ulnar border of the hand and portion of the palm where the ulnar nerve filaments are distributed is also greatly impaired. In addition there is a deep sulcus between each of the metacarpal bones due to atrophy of the interossei muscles, and the muscular power of the little finger and of the whole hand is to some extent impaired. At the seat of injury there is an oblique cicatrix about an inch long, exceedingly sensitive, and causing the patient extreme suffering if pressed upon. A nodular swelling, probably the upper end of the divided nerve, can be felt.

The diagnosis being clear and the condition of the hand such as to prevent the man following his occupation, I made an incision nearly 3 inches in length over the course of the ulnar nerve in order to expose its divided ends and suture them, if possible, together.

I first sought the upper end and after considerable difficulty found it embedded in the scar and enlarged into a bulbous mass, the size of a marrowfat pea. The lower end I discovered after no little trouble. It terminated in a filiform extremity which was lost in the cicatricial tissue; indeed I was only able to discover this end by exposing the nerve beyond the area of the injury below and tracing it thence to the divided extremity. I now pulled strongly on both ends, which were separated three-quarters of an inch, and in this way was able to approximate them a good deal. Both extremities were now cut square off, all the bulbous extremity of the upper portion being removed and the two ends carefully united with three points of catgut suture inserted deeply through the nerve-substance as well as the sheath. By means of the previous traction, and by flexing the wrist, this could be accomplished

without any tension. The nerve seemed to be of normal size and appearance. The operation and the dressings were antiseptic. The first dressing was made at an interval of a week as there was no pain complained of and no rise of temperature, and it was then found that the catgut sutures closing the external wound had yielded, and there was no primary union. Healing subsequently took place by granulation.

The striking feature in the history of the case is the rapid manner of the restoration of the nerve function.

The morning after the operation the patient spontaneously declared that he felt he had two additional fingers and that he experienced pain in the little and ring fingers. A hole was cut in the dressing large enough to expose the ring and little fingers, and the patient on being tested blindfolded indicated with considerable but not complete accuracy where his fingers were lightly touched with a pin.

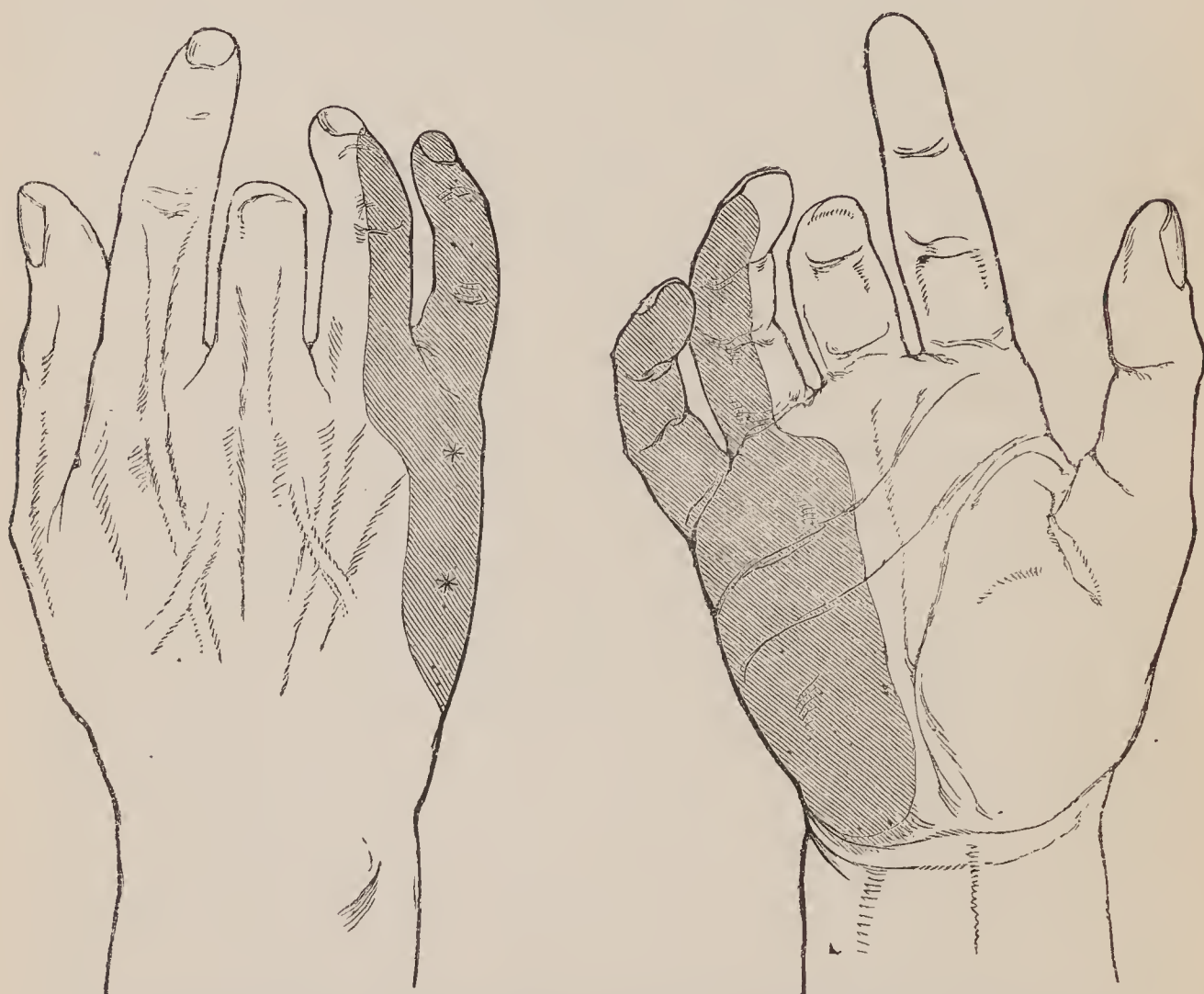
Notwithstanding the failure of primary union in the skin wound, doubtless mainly due to the lessened vitality of the cicatricial tissue in which the incision was partly made, the progress of the restoration of nerve function appears to have been uninterrupted. The patient for a week complained of great pain in the two fingers, then he felt, he said, they were somewhat numb as compared with those of the other hand. But repeated testings showed a continuous increase in the precision with which the patient indicated the point touched, until finally he appeared to be always quite correct and maintained the sensation was as perfect in degree as upon the other side. The wound was quite healed in a fortnight and he left the hospital some time later, having been detained for purposes of observation. The muscular power also developed at the same time, and the deep grooves between the fingers gradually filled out. He maintains he can now use his hand quite well. This case is very encouraging. The interval between the injury and the operation, six years, was a very long one; the nerve was not atrophied, but the most extraordinary thing is the almost immediate restoration of sensation in the previously perfectly anæsthetic little finger, and that this continued and increased in spite of the unfavorable condition for healing assumed by the external wound.

The motor power also underwent a similar but slower

improvement to that witnessed in the sensory elements of the injured nerve.

Gunshot wound of forearm ; injury to the ulnar nerve ; resection and suture of the nerve.—Lizzie U—, æt. 17, admitted November 27th, 1885. When five years old patient lost the last two joints of the middle finger, and last joint of the ring finger of the right hand by a machinery accident. Lately she has been

FIG. 1.



The shaded portion represents the anæsthetic area of the hand before operation.

employed in a shooting gallery, and a fortnight ago while the patient was cleaning a small muzzle-loading rifle loaded with No. 2 bullet it went off, the bullet passing through the fleshy part of the ulnar border of the right forearm about the middle of the limb. There was trifling hæmorrhage, but immediately after the accident the little and ring fingers became flexed and there was complete loss of sensation in the little finger and adjacent side of the ring finger, as well as on the ulnar side

of the hand ; there was no loss of sensation or loss of power otherwise in the forearm (Fig. 1). The limb rapidly swelled, and the patient was treated at the Hammersmith Hospital. The swelling presently subsided, and she has since experienced pains shooting from the seat of the injury to the inner side of the elbow and sometimes to the axilla.

On admission.—The patient is a healthy-looking girl. The aperture of entrance of the bullet, which has not yet healed, is on the front of the forearm somewhat nearer the radial than the ulnar side. The edges are inverted, red, and inflamed and its centre is depressed. The aperture of exit is on the inner side of the ulna at the same level. Its edges are not inverted nor depressed. Both wounds discharge slightly. There is some tenderness along the track of the ball, but the bone is uninjured.

The ulnar artery can be felt at the wrist. The loss of sensation in the little finger and the inner side of the ring finger and on the ulnar border of the palm is complete. The last two joints of the little finger remain flexed, but the patient can flex and extend the proximal joint. She cannot adduct nor abduct the fingers on the ulnar side of the hand, but can adduct, abduct, and flex the thumb.

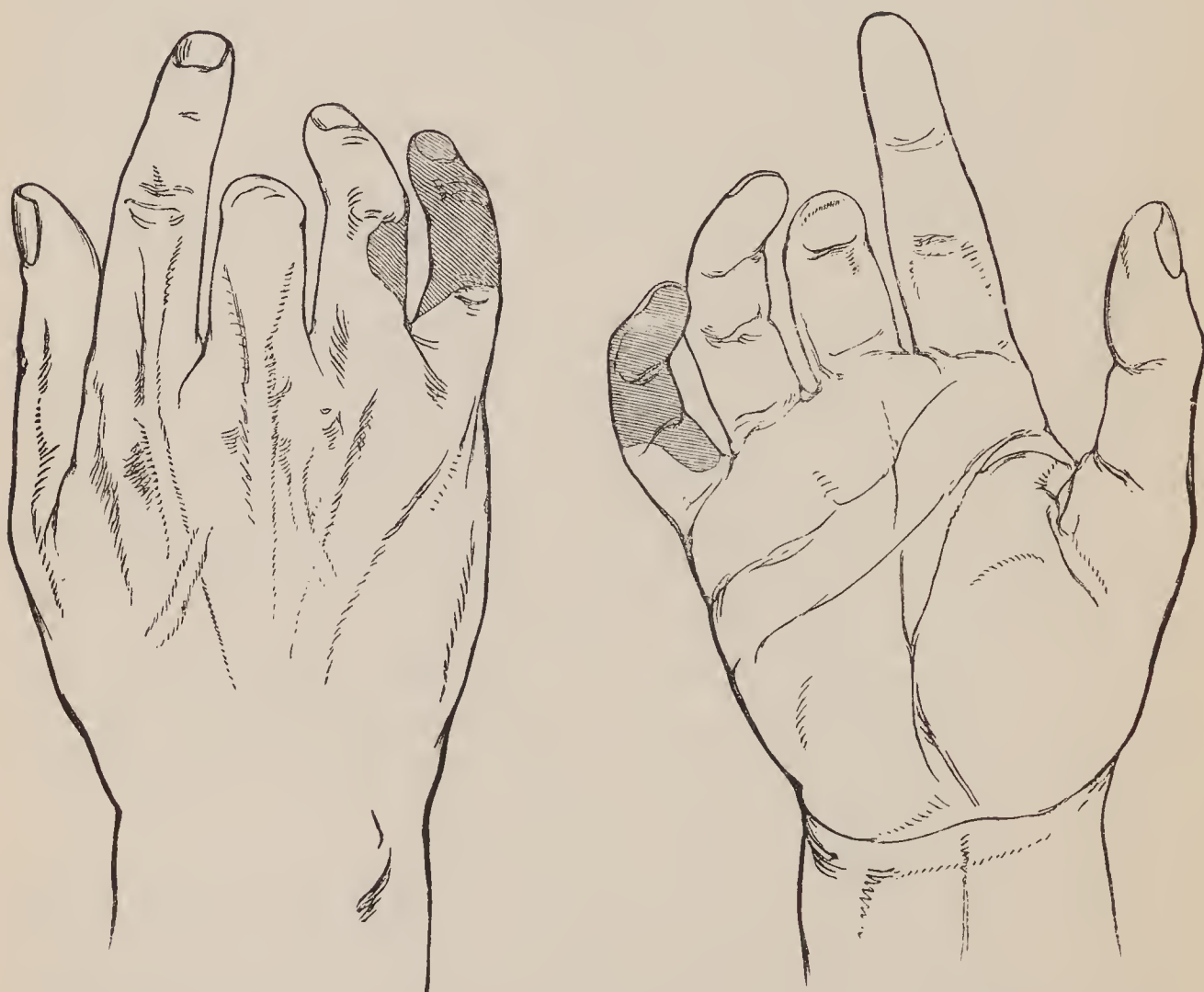
The wounds were dressed with sulphate of zinc lotion, and by December 20th had healed. A small hard lump can be felt in the situation of the injury to the ulnar nerve. There is no return of sensation in the affected parts.

Operation.—On December 24th, the patient having been placed under ether and the right arm thoroughly washed with carbolic solution, Sir William Mac Cormac operated by making a longitudinal incision about 3 inches in length on the front of the ulnar side of the forearm the entrance wound corresponding to the middle of the incision ; the ulnar nerve was thus readily exposed. The continuity of the nerve appeared to be unbroken as if it had not been completely divided by the bullet ; it must, however, have been bruised or crushed as there was a very dense, hard, spherical enlargement occupying the injured portion of nerve. The tissues were tattooed with the gunpowder. After exposing and stretching the nerve somewhat, the thickened portion, to the extent of about half an inch, was excised and the cut ends of the nerve united by three

sutures of very thin silk. The hæmorrhage was trifling, and this having been arrested, the edges of the skin were stitched together and the wound dressed antiseptically. The arm was then put up in a plaster of Paris splint with the wrist and forearm flexed.

25th.—At 5 a.m., *i. e.* thirteen hours after the operation, the patient had some return of sensation on the back of the hand

FIG. 2.



The shaded portion represents the area of impaired sensation continuing after the operation at the time the girl left hospital.

above the little finger, but not in the finger nor on the palmar surface of the hand.

26th.—Area of sensibility is not increased, but the sensation is more perfect at the recovering point ; a prick and pinch are readily distinguished.

30th.—Sensation is now perfect on back of hand in the metacarpal region, slight sensibility on the ulnar side of ring finger, and on the back of the first phalanx of little finger, no

sensation on the affected palmar surface or on back of the two distal phalanges of little finger.

January 1st.—Vague sensibility returning to palmar surface generally, sensibility on other recovering surfaces improved. The wound was dressed yesterday, and the stitches removed.

5th.—There seems to be some faint sensibility at the back of the two distal phalanges of little finger. Sensation is good on ulnar side of the ring finger except at a point between first and second phalanges.

12th.—The sensation in the palmar and dorsal metacarpal region is perfect. On the ring finger sensation is perfect except at one point between the first and second phalanges at the back. On the little finger sensation has only returned to the back of the first phalanx.

Remarks.—The rapid return of conducting power in some of the sutured nerve-fibres is striking and the very considerable recovery of sensation in the short space of three weeks satisfactory. The shaded parts in the drawings made by the dresser of the case, Mr. Dumerque, show very clearly the anæsthetic area before and after operation.

Neuroma of the median nerve; excision and suture of a portion of the nerve; recovery.—Thomas E—, a farmer's servant, æt. 37, was admitted to St. Thomas's Hospital April 11th, 1886, under the care of Sir William Mac Cormac. The patient is a sparely-built man with an anxious expression. He complains of an acutely painful swelling in the middle of the left arm at the inner edge of the biceps, which has been slowly growing for about five years. He was bitten in the arm in the same place by a horse nine years before. When first noticed it was the size of a pea and itched rather. It has grown gradually larger, and for the last twenty months has been painful, especially on lifting a weight. He cannot bear it to be touched, and any pressure upon it, even slight, causes severe lancinating pain stretching to the fingers and thumb. He is unable to follow his occupation. The tumour lies in the course of the median nerve where the latter crosses the artery. It is hard, smooth, of oval shape. The tumour is now about the size of a pigeon's egg, or a large almond; it can be moved laterally with ease, but is scarcely movable longitudinally, and

the attempt causes considerable pain. The skin is not adherent nor altered in any way, and the tumour appears covered only by skin and fascia.

12th.—Under ether an incision was made over the tumour through the skin, superficial and deep fasciæ. This exposed a greyish-white swelling in the course of the median nerve. About half of the nerve appeared to pass over the tumour in a shallow groove upon its surface, the rest most distinctly passing through it. The tumour was easily freed from the surrounding areolar tissue, and from the sheath of the artery on which it lay, and was then raised out of the wound by carefully stretching the nerve. The strand of nerve passing over the tumour was carefully dissected off, and the remainder divided at the points of entrance into and exit from the tumour. On the arm being fully flexed the two ends of the nerve, which had been cut square off, were, after a little stretching, sutured together with three sutures of fine antiseptic silk. The ends of the sutures were cut off short. During the operation there was scarcely any bleeding; one small vessel was tied with catgut and one twisted. After cleansing the cavity thoroughly with 1 in 40 carbolic solution and inserting a small slice of drainage-tube the undivided portion of the nerve, which formed a loop of about 2 inches in length, was gently pushed into the upper part of the wound and the edges of the incision through the skin were brought together with catgut sutures. The whole operation was strictly antiseptic; iodoform gauze wrung out of 1 in 40 carbolic was used as a dressing, covered with salicylic wool. The arm was kept in the flexed position by strips of Bavarian flannel soaked in plaster of Paris. The recovery was uncomplicated. The day after trifling sensation was felt in the thumb and two fingers. There was no interference otherwise with sensation or movement in the hand beyond what was caused by the position of the arm. The highest temperatures recorded were 100° on the same and the following evenings. The wound was dressed on the 19th, that is in a week, the tube and sutures coming away in the dressings. It was redressed in the same way, the arm being maintained in position by the bandage. On the 26th the dressings were finally removed; the wound had healed and the patient was discharged convalescent. He presented him-

self on May 10th, having apparently made a perfect recovery both as to sensation and movement.

Remarks.—The result in this case is very satisfactory. It was difficult at first to make out the exact relation of the tumour to the nerve but as the dissection proceeded this became quite clear. Although the portion excised was $1\frac{1}{4}$ inches in length, the divided ends could be brought together without tension after the nerve had been gently stretched, and in consequence the continuous portion of the nerve was converted into a loose loop but with this it was determined not to interfere.

After a few days, when a testing examination of the hand and forearm could be made, the sensations appeared very perfect although not absolutely so. Possibly the unimplicated part of the nerve had assumed a compensatory function. As nearly as could be estimated one half of the nerve entered and was lost in the growth while the other passed over it.

OSTEOTOMY OF THE FEMUR

FOR THE RELIEF OF

DEFORMITY CAUSED BY ANCHYLOSIS OF THE HIP.

BY

SIR WILLIAM MAC CORMAC.

In cases of spontaneous cure of hip-joint disease which have been carefully treated, recovery may ensue with the limb in a straight line with the body, or with only a slight degree of deformity, but there is a class of frequently occurring cases where ankylosis has taken place in a more or less faulty position. In the most common form, the patient while in the erect posture cannot touch the ground with the sole of the foot but is obliged to support himself on the toes, the pelvis being much inclined to the affected side. The position of the limb is one of considerable flexion, adduction, and inversion, and in those cases of spontaneous cure which have not been sufficiently attended to the limb will become firmly ankylosed in this inconvenient attitude and severe spinal compensating curvatures necessarily ensue.

Various operations have been devised to remedy this condition of things. Rhea Barton sawed through the neck of the femur and excised a wedge-shaped piece of bone so as to permit of extension of the limb. The operation, however, proved fatal in nearly half the cases. Sayre, with the expectation of obtaining in some cases a new and movable joint, cut

out an oval-shaped portion from the femur just below the lesser trochanter. Adams advocated an operation which has now been performed many times with excellent results. The neck of the bone is sawn through from above downwards with a saw which he specially devised, or it may be divided by a chisel. But in many cases of disease the neck has been removed by absorption, and any attempt to divide the parts with the saw must, under these circumstances, fail. A much simpler and easier method is to divide the femur through a small wound made on the outer side immediately below the lesser trochanter. Through this wound a chisel may be introduced, and the bone readily cut through. Then the limb can be straightened and kept in splints until union of the divided bone has taken place. This method gives excellent results, and has the advantage of being practically subcutaneous, as the external wound needful to introduce the chisel is very small.

In the three cases whose particulars follow, the deformity in each was most pronounced and very similar in all. The hip was flexed quite to the angle of 45° , the femur rotated inwards in two and outwards in one, and considerably adducted in all. In all too there was shortening, complete ankylosis, and a decided lateral curvature of the spine in addition to very extreme lordosis (Fig. 1).

Walking was most fatiguing and the gait very unsightly. In Case 1 the disease had been apparently a caries sicca; there had been no suppuration nor sinus, while in Cases 2 and 3 there had been suppuration. In no instance was there any marked febrile disturbance or pain after the operation, and the result in all was satisfactory both as regards the relief of the deformity and the increased facility in walking.

The drawings show Emily P— before and after operation. They are taken from photographs. The appearances in the other two cases were very similar. The malposition in Case 2 was even more pronounced, while in Case 3 it was almost identical to that represented in the woodcut. The soft parts in front of the joint always became very tense when the straightening was being effected, the tendon of the adductor longus appeared most especially tense and seemed to require division. But the muscles soon yielded and no tenotomy was required in any of the cases. The operation is so exceedingly simple and

the results obtained apparently so good, certainly as much so as could be obtained by any other method, that I think the record of the three cases following not wanting in interest.

CASE 1.—Emily P—, æt. 17, was admitted to St. Thomas's Hospital for the results of old standing hip disease.

“When five years old the patient had pain in the right knee and hip. It grew gradually worse for three months and the limb became very painful. Then she was able to walk about again, but the right leg was shorter than the left. In this condition she continued for about six years, pain being caused by any ‘jarring.’

“Three months before admission, in April last, she had some slight pain in the back and then a medical man first called attention to the spinal curvature. She has been able to walk about with a stick for some time, and otherwise she has lately enjoyed good health.”

The right thigh is much adducted, the right knee rests on the inner side of the left thigh, and is flexed at the hip-joint nearly to a right angle, the tip of the great trochanter is $1\frac{1}{2}$ inches above Nélaton's line, and owing to this and to arrested growth there are $6\frac{1}{2}$ inches shortening of the right limb and considerable diminution in size of the whole lower extremity. The right thigh measures 14 inches in circumference at the middle, and the left 17 inches. The right foot is smaller than the left. The spine is much curved forwards in the lumbar region, and the lower dorsal spine shows a marked lateral curve towards the left.

On extending the right thigh there is very great lordosis, Fig. 1, p. 62. When the patient is lying with her back touching the bed the flexed thigh shows an angle of about 110° with the pelvis; the angle of adduction of the thigh is about 45° .

There does not seem to be any general enlargement or tenderness about the right hip. There is no pain on making lateral pressure on the hip, nor on moving the right thigh unless the limb is sharply “jarred.” No movement can be discovered at the hip; the ankylosis is apparently complete.

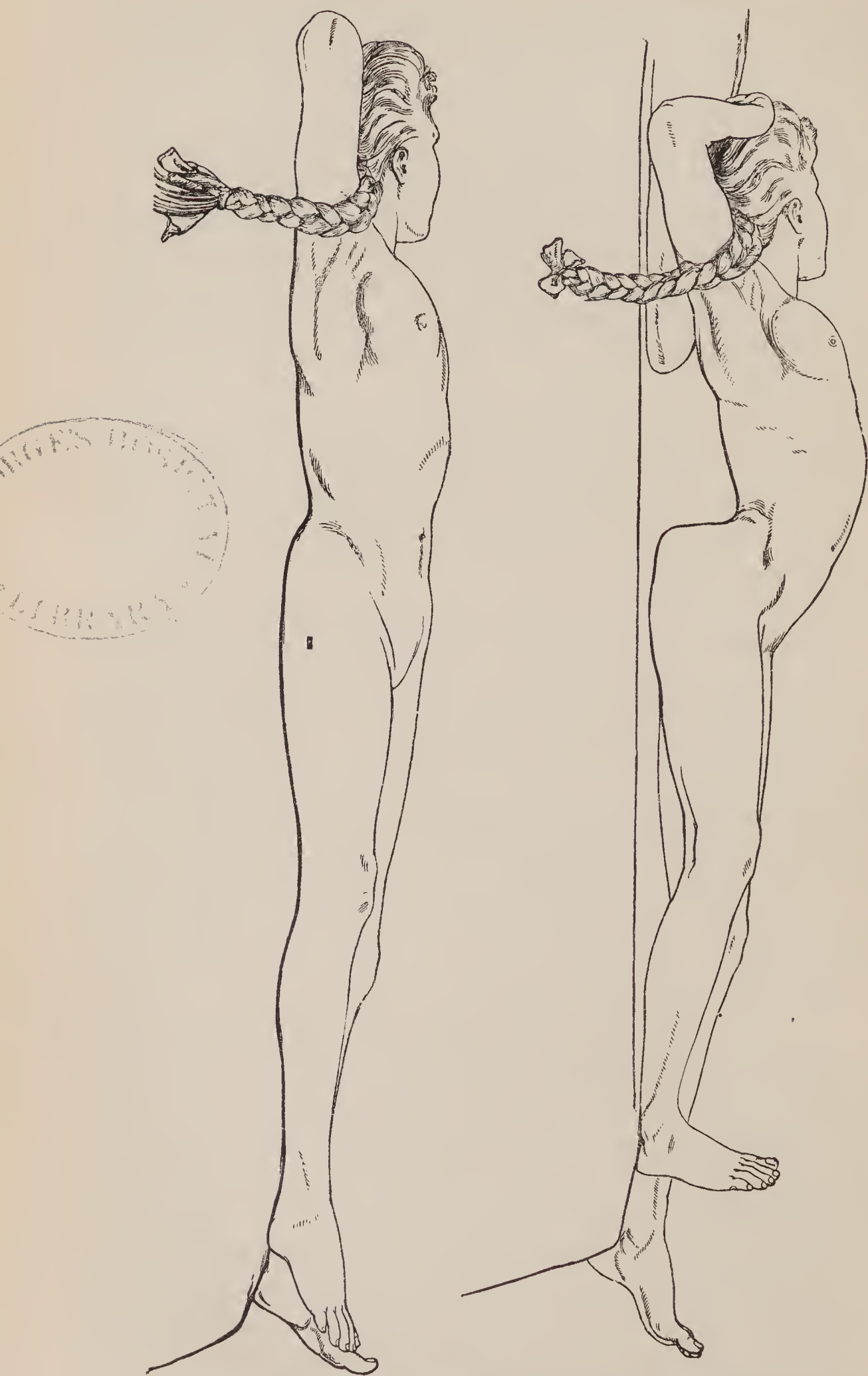
Urine pale, clear; sp. gr. 1026, no albumen, acid reaction.

Continuous extension for about a month was applied by means of a plaster stocking put on leg with a weight attached of 8 lbs.,

Osteotomy of Femur.

FIG. 2.

FIG. 1.



The drawings represent the position of the limb and trunk before and after operation.

and subsequently Thomas's splint, which was straightened at intervals, and the limb, as the result, appears perhaps to be a trifle straighter. But no material gain having been accomplished it was decided to perform osteotomy.

On Saturday, October 17th, patient was placed under ether and Sir William Mac Cormac performed osteotomy of femur just below the trochanter minor. The limb was afterwards straightened out and the lordosis much reduced, but only in part removed. A double Thomas's splint was applied and the right lower extremity fixed to it with plaster of Paris applied in strips of Bavarian flannel. Temperature, evening of operation, 98.8° . Patient has had a good deal of pain in the back, none in the wound. An injection of morphia was given evening of 17th. Patient slept well. During succeeding days the limb gradually came down more and more and was eventually quite straight, as may be seen in Fig. 2.

The recovery was uninterrupted. Temperature normal throughout.

November 2nd.—On being dressed the wound was found to have healed.

December 7th.—The patient rose, and moved about in a wheel chair. It was thought advisable to keep her recumbent for a considerable period until the callus uniting the divided ends of the bone had become thoroughly solid and resistant, as the angle at which union must have occurred might readily lend itself to the occurrence of fresh deformity.

CASE 2.—Kate I—, æt. 19, was admitted to St. Thomas's Hospital July 13th, 1885, discharged October 29th, 1885.

Family history.—Father dead, cause unknown. Mother alive and well.

Previous history.—On her way to India when two years of age patient believes that she had scarlet fever. At four years of age, whilst at Meerut, near Bombay, she fell from a table on her right hip and was taken to the Army Hospital; shortly afterwards an abscess formed and was opened. Two years subsequently two pieces of bone were removed. Another abscess appeared soon after, and a small piece of bone came away. The leg was then put up in splints and weights attached to it; whilst in splints the abscess did not discharge, but began

again to do so after they were left off; eventually the sinus healed up about four years after.

She then enjoyed fair health and returned from India at the age of eleven. She used to walk on her toes, and says that at first the back was not much arched, but during the last two years it has been getting very much arched and she found great difficulty in walking, the leg seeming to be much shorter than before; there was also pain in the back, which sometimes kept her awake at night. Six months ago she had to wear a boot the sole of which was 5 inches thicker than the other.

On inspection, the right thigh is found to be adducted over the left thigh, rotated inwards and flexed at an angle of 45° . There are no movements to be made out in the hip-joint; it is completely ankylosed.

On measurement the tip of the right great trochanter is found $1\frac{3}{4}$ inches above Nélaton's line.

The two femora are of the same length, also the tibiæ; below the great trochanter is a scar in the position of the former sinus.

July 18th.—Under ether a vertical incision 1 inch in length was made down to the bone 2 inches below the great trochanter on the right side, a chisel was inserted, the bone divided almost through, and then broken. A catgut drain was inserted, the wound sutured, and dressed with iodoform. A long outside splint was applied, to which the limb was bandaged in very much improved position, the inversion and adduction being completely obviated, but not, at first, the flexion.

20th.—Patient has had a hypodermic injection to relieve pain in right thigh. No pain this morning. Tongue white and furred. Temperature 102.2° , pulse 108, fairly strong.

The girl made a good recovery, the temperature rising, for a short time, on only one occasion as previously noted.

August 20th.—The splints are now left off. The wound is superficial and nearly quite healed. It is still dressed with iodoform. The limb is perfectly straight.

September 21st.—The patient was allowed to rise and was able to stand, to lift her left leg from the ground and bear her whole weight on the right limb. It was found that the old boot with 4 inches removed from the sole would now suit, and that with it she could walk with but a very slight limp, thus

showing a practical gain in length of 4 inches. The patient is now allowed to sit up and move about in a wheel chair.

October 24th.—The girl has had a leather splint made and applied, with which she can walk about very comfortably.

26th.—The extremities of the divided shaft have united very firmly; the lower end of the upper fragment projects at a point $3\frac{1}{4}$ inches below and internal to the anterior superior spine. The parts are firmly ankylosed; in the recumbent position the thigh lies flat in the straight line with the trunk with hardly any lordosis.

Right limb. Left limb.

From the anterior superior spine to the internal malleolus the measurements are	27 $\frac{3}{4}$	29 $\frac{1}{2}$
From the tip of the great trochanter to the lower margin of the external con- dyle	13 $\frac{1}{2}$	15

The wound presents a firm, narrow, pink cicatrix.

29th.—Discharged.

CASE 3.—Edith C—, was a patient in St. Thomas's when six years old. Two years before she had fallen on her left hip, and had suffered from lameness for one year. The symptoms were pain on pressure in the position of the joint; apparent shortening; flattening of the gluteal region. The thigh was flexed at an angle of 45° , there was lordosis and rigidity and starting pains. The treatment adopted was a Thomas's splint with extension and the administration of syr. iodide of iron, 3ss b. d. Presently the starting pains disappeared, but an abscess formed over the joint which was opened antiseptically. She was subsequently discharged convalescent.

She returned to the hospital March 8th, 1886, a well-formed healthy-looking girl, æt. 12. The left hip-joint is completely ankylosed; the thigh is flexed, adducted, and rotated inward. There is a white cicatrix $2\frac{1}{2}$ inches long in a line with the anterior superior spine of ilium. The great trochanter is half an inch above Nélaton's line. Measured from the anterior superior spine to the internal condyle there is 1 inch shortening. There is extreme lordosis when the thigh is extended, by raising the thigh so as to form an angle of 35° with the

horizontal plane the lumbar region rests flat on the bed. To stand upright with both feet on the ground she has to flex the right knee, tilt the pelvis and curve the spine to the right.

March 13th.—Under ether a longitudinal incision of three quarters of an inch was made down to the bone about 2 inches below the great trochanter. A chisel was introduced, and the bone divided transversely. The operation was conducted antiseptically and with spray. Three catgut sutures were then inserted in the skin-wound and a bundle of catgut for drainage. The dressings used were iodoform gauze, wrung out in carbolic 1 in 40, and salicylic wool. The leg was put up in a double Thomas's splint.

On March 20th the temperature rose to 100°.

22nd.—The wound was dressed under the spray. There had been some glutinous discharge, the wound appeared quite healthy. The sutures were removed. Strips of plaster extending from the ankle over the front and sides of limb were applied.

31st.—The wound was again dressed under the spray; it had almost healed. There had been a slight discharge of bloody serum. Strips of plaster were again applied, and the legs separated by a sand-bag.

April 12th.—The wound was quite superficial and dressed with boracic lint. Splints were discontinued, as union was firm and an iron and leather apparatus ordered extending from the pelvis to the boot, with a joint at the knee.

May 5th.—She has got the apparatus and a few days afterwards left the hospital with the deformity quite removed and able to walk well without any distress or difficulty.

ILLUSTRATIONS
OF
CERTAIN OBSCURE NERVOUS AFFECTIONS
IN CHILDREN.¹

By W. B. HADDEN, M.D. LOND.

I.—*Tetany*.

CASE 1 (fatal).—J. K—, æt. 1, was admitted under Dr. Ord on May 16th, 1883. His mother was delicate, but there was nothing else to note in the family history.

The patient had always been a sickly child, although he had never had any definite illness. Five weeks before admission the child seemed to be ill and diarrhœa came on, which lasted for about a month. This was followed by constipation. The child had four fits, after the last of which the tetany was observed.

On admission he was well nourished, though very fretful. The hands were kept in the position characteristic of tetany. The wrists were flexed, and the thumb turned inwards on to the palm, the fingers being formed into a cone. When the parts were handled or moved the child cried out and seemed

¹ I must thank the physicians of the hospital for their kindness in allowing me to use the cases which illustrate this paper. The cases fall naturally into three classes—Tetany, Retraction of Head, and Inco-ordination of the Mechanism of Swallowing.

to be in pain. The feet and toes were affected in the usual way. The wrists and ankle-joints were enlarged, though not tender. There was said to be no beading of ribs. The two lower central incisors were cut, the two upper almost through. There was no enlargement of the liver and spleen, and the lungs were healthy. The motions were noted as "pale yellow." The temperature throughout was normal or a little subnormal. The child continued much in the same state until May 22nd (six days after admission), when he had two convulsions and crowing inspiration.

On this day the gums were lanced. He now went on well, the tetany became intermittent, and the rigidity was easily overcome by slight traction. He was discharged cured on June 2nd.

On October 29th of the same year he was readmitted with the same symptoms. Inquiries now elicited a history of syphilis in the parents. On June 3rd, the day after leaving the hospital, the child had a fit, but otherwise was well until October 23rd. The tetany then reappeared, but was not preceded by convulsions. The bowels became loose, and the child seemed feverish. There was also some difficulty in dentition. Since his previous admission one lateral upper incisor had been cut, and a lower lateral incisor was just appearing. Both hands, especially the right, were more or less fixed, the fingers and thumb being extended and at the same time adducted and opposed. The wrist was flexed and the arm applied to the side. This condition varied considerably in intensity, and at times disappeared. It was said to persist during sleep. The right leg had a tendency to flexion on the thigh, with flexion of the thigh on the abdomen and rotation outwards. The head was large, somewhat flattened on the top, the anterior fontanelle being widely opened, the posterior closed. There was convergent squint of both eyes, which occasionally intermitted. Now and then, especially during sleep, twitchings were noticed about the mouth. The ribs were beaded, the heads of both radii enlarged, and the shaft of the left tibia slightly bent. The child had only five teeth, two lower and three upper incisors. Throughout there was diarrhoea, the stools being loose, offensive, and yellow or green. He was very restless at night, occasionally starting up with a cry.

There was also much sweating about the head. Towards the end he had painful paroxysmal attacks in which the legs were strongly adducted, the thighs and legs being flexed and the great toes extended. The thoracic and abdominal organs seemed healthy. The temperature was usually normal or a little above normal in the morning, rising 2° or 3° in the evening.

In spite of all remedies the diarrhœa persisted, and he died on November 11th.

Post-mortem examination.—Body of an emaciated child. Rigor mortis nearly absent. Hands still in tetany position. Marked heading of ribs. All the organs were healthy, except the kidneys. Both pelves contained turbid fluid. The right kidney was much larger than the left, the pelvis more dilated, and the vessels more injected; the cortex was large, opaque, and in parts showed early suppurative foci. The cortex of the left kidney was healthy. The right kidney weighed $3\frac{3}{4}$ oz., the left $1\frac{3}{4}$ oz. The brain, spinal cord, and right ulnar nerve were healthy.

A careful microscopical examination was made of the various parts of the nervous system, but I failed to find anything abnormal.

The parts from which sections were made were the upper portions of the left ascending frontal and parietal convolutions, the left corpus striatum, the cerebellum, the medulla oblongata, the various regions of the cord, and the right ulna nerve.

CASE 2.—A. W—, æt. 2, was admitted under Dr. Ord on April 2nd, 1883. Seven months previously the child had an attack of bronchitis, from which he recovered. A day or two days before admission the cough returned, and he had a convulsion, since when the rigidity of the hands and feet was noticed.

On admission the breathing was very rapid, and there was crowing inspiration. Bronchitic sounds were heard all over the chest. There was some enlargement of the wrists. The hands and feet were in the position of tetany, and any attempt to move them and even handling caused pain. The child had cut twelve teeth, and the canines were just coming through; the gums were much inflamed. There was slight fever for

the first two or three days. No special note was made of the state of the stools and their frequency. The symptoms continued, though less marked, until April 14th, when the gums were lanced. This was rapidly followed by relief, and on the 21st the child was practically well, although an occasional tendency to turning inwards of the thumb and great toe was noted. He was discharged cured on April 23rd.

CASE 3.—A male child, æt. $2\frac{1}{2}$, was admitted under Dr. Ord on February 25th, 1884, and discharged cured on March 9th. He had had diarrhoea off and on for a year, and had been restless at night and fretful during teething. There was no history of worms. The tetany occurred suddenly on the day of admission. He was a well-nourished child, but there was some palpebral conjunctivitis. The head was normal and the anterior fontanelle nearly closed. There was slight thickening of the ends of the radii and some beading of ribs. All the teeth were cut except the left last lower molar. The hands were affected by tetany in the usual way. No note was made of the feet. There was no loss of sensation. The child had some bronchitis and diarrhoea.

On March 3rd it was noted that pressure on the femoral arteries caused flexion of the toes and turning inwards of the foot. On one occasion he was said to have whooped. The temperature occasionally rose 1° or 2° .

CASE 4.—A. B—, æt. 2, was admitted under Dr. Ord on March 5th, 1886. The only point to note in the family history is that his father had had facial paralysis. The patient was a strong baby, and had had no complaint except diarrhoea whilst teething. The tetany came on suddenly a few hours before admission.

On admission he was a well-nourished child. The hands were affected in the usual way. The forearms were semi-pronated. The elbow- and shoulder-joints were free. The toes were affected, and the ankles rigidly extended by the gastrocnemii. There was a little flexion and rigidity at the knees, none at the hips. Pressure on the femoral artery did not cause any change in the condition of the feet. The child seemed well in himself. The ends of the radii were thickened, and there was some beading of the ribs. The anterior fonta-

nelle was closed, though depressed. All the teeth were cut except the posterior molars. The prepuce was very long and the orifice contracted. It was said to have been sore occasionally, but there had been no difficulty in micturition. There was a little purulent discharge from the nose. The organs generally were healthy. The tetany had quite disappeared two days after admission, but the child still had the nasal discharge, as well as some aphthous stomatitis. He had a "whoopy" cough, and some rhonchi were audible. The temperature was normal, except on two occasions, when it was 100° and 101.2° . No special note was made of the stools. He was discharged cured on March 30th.

CASE 5.—J. W—, æt. 6 months, was admitted under Dr. Ord on December 21st, 1885. The parents were both dead, the father of phthisis, the mother of hæmorrhage after the birth of the patient. The mother had suffered from fits when a child, and her sister died in infancy from convulsions.

The patient had always been weakly. He had been brought up by hand, his food consisting of milk, ordinary bread, and rusks soaked in water. This nourishment was often rejected. The bowels had been always confined, never open, it was said, without castor oil. The child had not been fretful, and had had no night screaming. His present illness began ten days before admission with fits, during the first of which the legs were strongly drawn up upon the abdomen. He foamed at the mouth, the lips were blue, and the whites of the eyes shown. In the next fit the left hand was strongly flexed, and the thumb was drawn across the palm. He had a dozen such fits following closely on one another during that day. Next day the right hand was noticed to be similarly flexed, and after the fits had passed off the legs and arms remained contracted. The fits gradually diminished until five days ago, when they ceased for good, but the contractions remained.

On the third day an eruption was noticed on the trunk and extremities, said to be German measles. It faded in a few hours, but reappeared next day.

On admission the patient was found to be a well-nourished, particularly happy and amiable child. The hands and feet were fixed in the position of tetany. The arms were unaffected.

The ankles were a little rigid, and the legs were bent at the knees and could not easily be extended. The thighs were not flexed on the abdomen. The two lower central incisors were through. There seemed to be a little tenderness of the gums of the upper jaw. The only sign of rickets was slight beading of ribs. Nothing abnormal existed in the stools. The temperature was occasionally a little subnormal. He was discharged cured on Jan. 10th.

Remarks.—Excellent accounts of tetany have been written by Dr. Abercrombie,¹ Dr. Buzzard,² and others, so I shall not attempt to give a formal description of the disease. Some points are still *sub judice*, and one, the pathology of the disease, is quite unknown. To my knowledge only two post-mortem examinations are recorded. Dr. Abercrombie found no change in the spinal cord and medulla oblongata. Langhaus (quoted by Abercrombie) discovered thickening of the adventitia of the small spinal arteries and veins, but I confess I can trace no connection between such a condition and the peculiar symptoms of tetany. In the first case which I give a careful microscopical examination was made, both by myself and Dr. Sharkey, not only of the brain and spinal cord, but also of one ulnar nerve, and we came to the conclusion that there was no lesion.

It is very probable that tetany is a so-called functional disease, resembling in this respect the epileptic state, to which indeed it is otherwise related.

The transient character of the disease, the frequency of relapses, the sudden onset, the sudden ending, and its apparent connection with intestinal, bronchial, and other forms of irritation point to the functional nature of the affection.

In three of my cases the tetany was immediately preceded by convulsions, and this suggests to my mind that the tetany position of the hands and feet is a modification of the tonic stage of infantile eclampsia.

On the other hand it is right to add that convulsions have no necessary connection with the disease. Dr. Abercrombie

¹ "On Tetany in Young Children," a Thesis for the Degree of M.D. in the University of Cambridge.

² 'Clinical Lectures on Diseases of the Nervous System.'

observed that the spasm persists during profound anæsthesia and during sleep, and on this latter point Case 1 is corroborative. He therefore argues that the brain is exculpated from any share in the morbid process. This contention is not free from fallacy, for the spasm of late hemiplegic rigidity persists during sleep, and it would be useless to deny the primary cerebral origin of this condition. I am inclined to think that tetany is a temporary derangement of the functions of the pyramidal tract fibres. The prevalence of tetany in children may be due to the fact that this system of fibres is at this period in full developmental activity, and more likely to undergo functional disturbance. It is significant, also, that the muscles which mainly suffer are those which are in process of education, and by the law of dissolution these go first.

The literature on tetany is not very extensive, and it was for that reason that I described all the cases in children which have come under my notice. I have little to add clinically, except by way of corroboration. All the patients were male children, the subjects of rickets.

Four cases occurred during the early months of the year, viz. two in March, one in April, and one in May. Dr. Gee¹ has pointed out the prevalence of laryngismus stridulus during the same period of the year, a fact of some significance with respect to the relation subsisting between this affection and tetany.

There is nothing special to note in the family antecedents, except the probability of a syphilitic taint in Case 1. In each of the five cases a source of irritation existed, which probably acted as an exciting cause. Diarrhœa or some other disturbance of the intestinal tract seems to be very common in tetany. Diarrhœa, associated in one case with bronchitis and in another with conjunctivitis, existed in two, improper feeding and constipation in one, bronchitis in one, and nasal discharge with aphthous stomatitis and long prepuce in one.

Some form of present or pre-existing derangement of the intestinal tract was found in three out of the five cases, and in the other two no special attention seems to have been paid to the state of the stools. In two cases dentition was retarded, and was proceeding at the time of the attack. In both lancing

¹ 'St. Bartholomew's Hospital Reports,' vol. xi.

of the gums was followed by relief. Spasm of the glottis occurred in four out of the five cases. This seems to be a very usual concomitant of tetany. It was noted in all Dr. Abercrombie's cases, and he therefore alludes to it as "a constant symptom." The frequency with which laryngismus stridulus and convulsions are associated with tetany is more than accidental. The alliance suggests the reflex nature of the affection, a supposition borne out pathologically as well as clinically.

I may add finally that slight pyrexia existed in four, flexion of the leg on the thigh in two, of the thigh on the abdomen in one, semi-pronation of the forearm in one, intermitting convergent squint in one. I have nothing to say with respect to the facial irritability described by Dr. Abercrombie. It was not looked for in any of the cases which I have reported. In Case 3 it is worth mentioning that pressure on the femoral artery induced the tetany position of the toes, and in the same case the absence of anæsthesia was noted.

II. *Retraction of Head.*

CASE 1.—Rose T—, æt. 4 months, was admitted under Dr. Bristowe on January 18th, 1883. A fortnight before admission she was said to have "taken cold," and soon she became unable to hold her head up. The mother stated that the head had been growing larger and had become tender. There was no history of fits or injury.

On admission the child was well nourished. The head was large, measuring sixteen inches around the occiput and middle of the forehead. It was thrown backwards, and any attempt to straighten it made the child scream out with pain. The muscles at the back of the neck were very tense. The pupils reacted to light, and the right was a little larger than the left. No change was seen in the discs by the ophthalmoscope. No paralysis of limbs. Temp. 100°. Occasional vomiting. Bowels confined. Child restless during the night, but when undisturbed was quiet, and sometimes cheerful.

Leeches were applied behind the ear and poultices to the back of the neck.

On January 22nd the child was much better, and could move its head about freely without pain.

On January 28th she was presented much relieved. The temperature was normal, except on admission, when it was 100° .

CASE 2.—Florence J—, æt. 9, was admitted under Dr. Stone on December 1st, 1885. The child had always been healthy up to two days before admission, when she suddenly complained of pain at the back of the neck and head.

On admission the patient was a healthy-looking child, complaining of pain at the back of the neck. The head was thrown back, and any attempt to draw it forward caused pain. The muscles at the back of the neck, especially the posterior parts of the trapezii, were very tense. There was no squint, the pupils were normal, and there was no optic neuritis. There was no loss of power or sensation of the limbs. The tongue was a little furred, the appetite bad, the bowels confined. The urine was of sp. gr. 1035, acid, contained no albumen or sugar, but much triple phosphate. The temperature was 101° , and was raised 1° or 2° for the first three days. The rigidity began to disappear on December 4th, and on December 9th she was discharged quite well.

The bowels throughout were constipated, and she required frequent enemata or purgatives.

CASE 3.—Male child, æt. 3, was admitted on December 13th, 1882, and discharged cured on January 5th, 1883. He was quite well until five days before admission, when he became drowsy and ill. The day following the head became retracted. He had been feverish and irritable, but there were no fits or vomiting.

On admission the child was pale, unhealthy looking, and drowsy. The head was very large, measuring twenty-six inches in circumference, square in shape, the vertex being flattened and the forehead almost vertical. The fontanelles were closed. Dentition was complete, and the teeth were healthy. There was some beading of the ribs, but the lower ends of the radii were not thickened. The head was drawn backwards and to the left. The muscles were not very rigid, nor the tenderness great.

Remarks.—Other cases similar to those just described have come under my notice. The main interest in this affection lies in its resemblance to meningitis. It is true that retraction of the head is common in cerebro-spinal meningitis, but there are usually other symptoms which are non-existent in the simple cases now under discussion. I refer to such conditions as optic neuritis and paralysis of the nerves at the base of the brain.

I am not in a position to say when retraction of the head is merely a transient condition, nor can I give with any confidence the points which distinguish it from meningitis. Indeed, I do not assert dogmatically that these cases are not due to meningitis. On this point post-mortem facts only are decisive. The evidence, in my opinion, is against meningitis, and the strongest argument I can urge is that they get better rapidly. I am inclined to think that these cases are due to local spasm of the muscles of the back of the neck, but on what cause depending I know not.

I must mention in conclusion that this condition is not limited to children. There is an adult male now under Dr. Bristowe who has just recovered from a simple retraction of head. He had no other symptoms pointing to coarse cerebral disease. There is one significant point which may tend to throw some light on the causation of this affection. I refer to the local tenderness of the muscles involved. I repeat there is no reason why we should invoke meningitis as a cause in these cases. A local painful spasm or cramp is a sufficient explanation.

III. *Inco-ordination of the Mechanism of Swallowing.*

A female child, *æ*t. 18 months, came under Dr. Bristowe's care on May 31st, 1883. There was a history of bronchitis six months previously. There was no suspicion of diphtheria before the onset of the present illness, which came on three weeks before admission.

The dysphagia was described by Dr. Bristowe as follows: "The mode of taking fluid is certainly peculiar. She takes a mouthful of milk and then moves the jaws upwards and downwards, with the tongue nearly motionless on the floor of the

mouth, and the milk being tossed about in the cavity. She throws her head back at the same time. After the effort has been going on half a minute or a minute she closes her mouth and performs a healthy act of deglutition. Probably a little fluid finds its way down while she is opening and shutting her mouth. The fluid does not come through the nose or choke her. No paralysis." The child was discharged on July 1st, slightly better.

Remarks.—A year after I saw this case another exactly similar came under my notice. The patient was a female child nearly two years old, and was also under the care of Dr. Bristowe. I cannot say on what the dysphagia depended in these two cases. Possibly there was spasm of the pharynx, but it is safer, perhaps, to ascribe it to inco-ordination of the mechanism of swallowing.



ON SANITARY SCIENCE.

AN INTRODUCTORY LECTURE, DELIVERED AT ST. THOMAS'S
HOSPITAL.

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GENTLEMEN,—In appearing here for the first occasion as the Lecturer on Public Health, my thoughts revert to the time when I entered as a student of St. Thomas's Hospital twenty-one years ago. It was under the auspices of one among the foremost of those who created and gave impetus to a great national movement which has taken place during this latter half of the nineteenth century, and one who, perhaps more than any other individual, has helped to establish sanitary knowledge upon a sound medical and scientific basis—I mean Jno. Simon, a surgeon of this hospital, the first officer of health in London, and at the time of which I speak the medical officer to the Privy Council, the colleague of my father and others who were well known already for their work in the preventive branches of medical science. I am also reminded in addressing you for the first time that I stand here as the successor of a very able and indefatigable sanitarian, who has laboured successfully during the best part of his lifetime for the advancement of reforms which have already contributed largely to the health and happiness

of all, rich and poor alike. I may express the hope that as a lecturer at this hospital I may prove myself a credit to my former teacher, Mr. Simon, and that I may be found to be not an unworthy successor of Dr. Alfred Carpenter.

Now, gentlemen, in this my introductory lecture I propose to consider what sanitary science is, and to discuss in outline the kind of instruction I should propose to give on this subject. What then is sanitary science or hygiene? This is a question which we not infrequently hear asked by those interested in sanitary work, and it is one which it would not be easy to answer shortly and explicitly. For in order to do so fully it would be necessary to capitulate a list of studies the mere enumeration of which requires the space of three or four pages of the London University Calendar, and which embraces subjects as diverse as water analysis, house construction, vital statistics, and the effects of parentage on the individual expectation of life. But let us content ourselves with a somewhat less ambitious scheme and confine ourselves to those subjects a knowledge of which is necessary for preventive work, and which do not usually find a place in the curriculum of the student. Let us, for example, take the category of subjects upon which the student is examined for the certificate in sanitary service. It embraces the following: (1) Chemistry and Physics: the methods of analysis of air, water, and food (microscopical as well as chemical); (2) the laws of heat and the principles of pneumatics, hydrostatics, and hydraulics; (3) the laws and byelaws relating to public health; (4) vital and sanitary statistics; (5) the origin, propagation, pathology, and prevention of epidemic and infective diseases. It must be admitted that this is an extensive field of knowledge for anyone to master. The term specialty is sometimes applied to sanitary science, but it is evident that if that term is used in its ordinary sense, as we use it, for example, in speaking of the study of the diseases of the eye and their treatment, it is an absurd misapplication of the word. The most able and industrious worker at the present day could hardly expect to become at the same time an expert in analysis, house drainage, bacteriology, and also skilled in the method of tracing epidemics to their sources. But in ordinary sanitary practice a certain

amount of knowledge on these various subjects is essential to public medical officers, and is often very useful to private practitioners, and inasmuch as they do not form part of the medical curriculum they must be regarded as subjects for special study. In this sense, and no other, may the study of sanitary science be referred to as a "specialty." There are certain practical disadvantages attending the use of this word specialty. In the first place it seems to imply that anyone pursuing this branch of professional work is disqualified from undertaking any other. Now, I am not about to enter into a discussion of the arguments that may be adduced for and against the appointment of medical officers of health upon what has been termed the whole service system. But it is evident that if this system, as at present applied, fails, except in very rare instances, to attract the better and more highly educated members of the profession, it is bad for sanitary science, and it cannot therefore be good for the public. Upon this aspect of an important public question I do not propose to dwell at present. But upon another aspect of the same question I am bound to speak plainly and emphatically, because it immediately affects the subject which I have been appointed to teach.

There is one very great danger to the future of sanitary science in calling it a specialism, while as yet the meaning of the term "sanitary science" is so vague and so little understood by the public. It is one which is very strongly impressed on my mind by several years of official work, during which time I have heard a great deal of the difficulties, not only of medical sanitary officials, but also of those who employ their services, viz. the Boards of Health, which represent the public. The danger to which I refer arises from the fact that there already exists an impression that the advocacy of cleanliness is the sole object of sanitary workers, and the public mind has become possessed, so to speak, with the idea that the prevention of zymotic diseases consists entirely in the promotion of structural works for improved drainage and water supply. This impression is not easily corrected. A love of cleanliness is such an estimable virtue; we are taught from infancy that it is amongst the highest attributes of the human mind. It appeals to our æsthetic

instincts. Moreover we, as medical men, have unceasingly taught that dirt bears a definite relation to disease and death, and that an observance of certain principles which aim at securing pure air to breathe and pure water to drink are essential to the preservation of health. In this respect members of our profession may be spoken of as the pioneers of sanitation. In addressing the public on this subject, therefore, we dare not speak our whole mind lest we should be accused of inconsistency and of encouraging people to be dirty. But here of all places, among teachers, and before those who are capable of estimating the value of arguments founded on scientific facts, I may speak without risk of being misunderstood. Well, then, we know that cleanliness is not the panacea which it is represented to be. We know that even cholera, which is often referred to as the type of filth diseases, in its spread and perhaps in its origin is independent of conditions arising from excremental filth. One of the greatest pathologists of this age—Jno. Simon—who, combined with a philosophical mind, possessed a rare gift of literary expression, in a report on cholera to the Commissioners of Sewers for the City of London more than thirty years ago, wrote as follows: “The laws of epidemic visitations are very imperfectly known to us. Partly we have learnt the conditions which augment their local spoil, but nothing of what evokes their slumbering power, nothing of what governs their world-wide spread, nothing of what determines their eventual decline, nothing of what permits their fitful mildness. In this domain of unknown, perhaps unconjectured, influences, science would count it irreverence and temerity to dogmatize on single instances of apparent correlation, or to speak of the obscure impulses of that wandering plague as though they were the strokes of some machine subject to the guidance of one’s human will.” If Mr. Simon were writing at the present day on the same subject he would probably express himself in a similar fashion in describing our want of knowledge about cholera, which is almost as great now as it was then. Now, no one could justly accuse Mr. Simon of lukewarmness or indifference on the subject of cleanliness, for his reports abound in the most forcible illustration of the evils arising from filth, to which it was necessary at that

time to call attention ; and in after years, as you probably know, he inaugurated those remarkable inquiries made by Dr. Buchanan, the present medical officer to the Government, the late Mr. Netten Radcliffe, whose valuable labours in this direction earned but slight recognition, Dr. Ballard, and others whose names and works are familiar to all sanitarians. If it had not been for the labours of those to whom I have just referred, the belief that filth was the cause of illness would never have taken hold on the public, because they would never have understood the reasons for exceptional outbursts or epidemics of illness in which the connection with filth as a cause was hidden. They would also have been at a loss to account for the frequent immunity of districts in which the observance of cleanliness was grossly neglected.

It was mainly the teaching of the medical profession on the specific nature of ferments, and it was the work of those to whom I have alluded in discovering and demonstrating the causes of outbreaks of illness, such as the cholera epidemic in East London in 1866, the enteric fever epidemic due to milk infection at Islington in 1870, and the outbreak or prevalence of the same disease at Caius College in 1874, that convinced the public of the dangers arising from filth. For not only was the public thus enabled to understand the ways in which filth operated to produce disease, but an intelligible explanation was also afforded of the fact, appreciable to all, namely, that many districts might enjoy a long immunity from disease although the observance of cleanliness was grossly neglected. But those who were pioneers in this direction would be the very first to perceive that knowledge was incomplete, and that even as regards the etiology of that filth disease, enteric fever, we have as yet much to learn. Are the cases of continued fever at present grouped under the heading typhoid fever clinically identical ? Let me remind you of the outbreak of fever amongst the boys in the Training Ship Cornwall, who, though at first considered to be suffering from enteric fever, did not have the temperature charts so generally characteristic of that disease, and who on closer inquiry proved to be affected with a disease of a parasitic origin which was found to be associated with the

presence of næmatoid worms in the muscular tissue. Does not this outbreak alone show the need of making ourselves sure of every link in the chain of proof when we are endeavouring to establish a knowledge of the causes of disease; and does it not illustrate in a remarkable manner the place which medical knowledge occupies in preventive or sanitary work? The first step towards the discovery of the causes of enteric fever may be said to have been Sir William Jenner's classical work on the distinguishing features of typhus and enteric fevers, and later experiences also show that accurate clinical observation is an indispensable part of a scientific sanitary inquiry. The diseases of which I have been speaking, cholera and enteric fever, are called filth diseases, but what about those other zymotic diseases, scarlet fever, diphtheria, and smallpox, about whose origin and methods of spread we are even less perfectly acquainted? At the present day it is common enough to hear these diseases spoken of as if they were the product of filth accumulations. Here it is that an indiscriminate advocacy of cleanliness and an easy belief in its all-sufficiency as a means of preventing zymotic diseases has been attended with the most conspicuous disadvantages to the public. In the first place, it is a check upon the scientific study of the causes of these diseases. If it be taken for granted that the promotion of cleanliness must be the sole aim of all sanitary workers, small encouragement and slight opportunities will be afforded to those who endeavour to extend our knowledge with regard to them. There are other immediate practical disadvantages, for by engrossing public attention on the pursuit of cleanliness an inattention is necessarily begotten to other precautionary measures, which for preventive purposes are more necessary. For example, it engenders a general carelessness with regard to isolation and disinfection, for it is difficult to persuade people that there is danger to health when there is nothing offensive to the smell, or from things that appear clean and new. An infected food supply may be the means of propagating an epidemic in a district whilst attention is concentrated on the drainage arrangements and house sanitation. Again, much of the unpopularity of vaccination is undoubtedly due to this indiscriminate advocacy of cleanliness. If people

are taught that smallpox is to be prevented by washing themselves frequently and by keeping their houses clean and free from excremental filth, their drains ventilated, and their water supply pure, what wonder that they should object to an operation which they come to regard as superfluous. Not the least of the disadvantages to which I now refer is this, that Boards of Health having become imbued with the belief that the promotion and enforcement of cleanliness, or sanitation as it is termed, is their sole function, find a sufficient reason for not appointing as their medical officers of health men of scientific acquirements who would become their influential advisers as well as the instructors of the public in the district to which their duties relate. For it is not unnaturally argued that the work is of such a character as hardly to need scientific acquirements or medical knowledge.

Let me not be misunderstood upon this vital point. I am amongst the most strenuous advocates of cleanliness as essential to health. I cannot, therefore, as a teacher of sanitary science yield to anyone in this respect, and I should not fail to give instruction about the mechanical details concerning which knowledge is essential for practical sanitary work. But I believe there is a danger to the future of sanitary science in obscuring the truth and in claiming for cleanliness, as a means of preventing disease, far more than that to which it is entitled. The sentiment upon which a love of cleanliness is based commands respect, but no science worthy of the name can be said to have a stable foundation which partly rests upon a basis so insecure as that of sentiment. The pursuit of truth and the teaching of truth are the only ways of establishing any science.

I have dwelt thus at length upon this part of my subject because there is a general impression that sanitary science is a science for mechanics, and that whether the mechanics happen to be doctors, engineers, surveyors, architects, or sanitary inspectors, their common object is precisely the same, viz. the advocacy or enforcement of cleanliness and the promotion of structural works for improvements in drainage, sewage disposal, and water supply. Against this view, and against the spirit of easy acquiescence which

reduces the study of the causes of preventable disease to such extreme simplicity I must protest with all the earnestness at my command. Sanitary science never would have existed at all if it had not been for the labours of Simon, Murchison, and Bristowe, of this hospital ; of Parkes, Jenner, Buchanan, Burdon Sanderson, and Ballard, of University College ; and of others whose names are associated with the great medical teaching schools of Great Britain. It has been advanced mainly by the accurate study of medicine, pathology, and the sciences most closely allied to medicine. The exact study of epidemics in this country, by which the causes of outbreaks of disease have been traced with mathematical certainty, has also gone far towards justifying us in speaking of sanitary knowledge as a science. In the face of such facts it seems superfluous to argue that, as in the past so in the future, that knowledge can only be advanced and established by similar methods. We, as doctors, when we engage in the work of practical sanitary administration have our legitimate sphere. It is not for us to acquiesce in dogmatic assertions even although they may emanate from sanitarians for whom we must entertain respect, nay, veneration, and whose philanthropy and disinterestedness is beyond all dispute. Such assertions, if not founded on known scientific facts, are perhaps best received in a spirit of scepticism until proof can be obtained. For ourselves we must always remember that our science is progressive, and while we do not fail to indicate conditions which are liable to foster illness, and to urge their removal on proper and legitimate grounds, we must not forget that it is essentially our duty to bring scientific knowledge and scientific methods to bear upon the investigation of the causes of disease so that we may devise feasible modes of preventing it.

I will now proceed with a brief sketch of the kind of instruction I should propose to give to those who attend this class. After what I have said, you will readily understand my reasons for putting to the fore the study of those diseases with which medical officers have most to do. I should commence with a description of the methods of inquiry into outbreaks of disease, and of the nature of the proof required in sanitary investigations. Upon this there is much to be

said. I should propose to illustrate my meaning by examples of outbreaks which have been investigated, such as the Caius College outbreak of enteric fever, the Islington milk epidemic, the Caterham epidemic of enteric fever, and the recent epidemic of scarlet fever in Marylebone and North London. These examples I should choose for the purpose of illustrating the methods of inquiry which have to be adopted. The immediate practical utility and importance of this teaching is obvious. The above-mentioned inquiries partook of the character of original research, and it is only the chosen few who would be considered fitted to undertake work of such a highly important nature. But it may happen to anyone who has an official post that an outbreak of enteric fever, scarlet fever, or diphtheria may occur under circumstances which suggest contamination of a source of water, milk, or food supply. Suspicion may be also cast upon the water or the milk on insufficient grounds, and then there will devolve upon the medical officer the whole responsibility of proving or disproving the charge that has been made, and of taking all the needful steps for stopping the further spread of disease. When we consider the magnitude of the interests that are sometimes involved it is evident that the position in which a medical officer of health may be placed is one of great responsibility, and that anyone who is not prepared beforehand in such an event with a plan of action is in the same perilous position as a medical practitioner who is suddenly called upon to treat a case of flooding from the uterus, a strangulated hernia, or threatened asphyxia from obstruction of the larynx, and who has not by previous training prepared himself to meet such an emergency.

Having treated of this part of my subject I should devote one or two lectures to a description of the known methods by which infectious diseases are spread, and also the measures by which that spread may be prevented. This will lead me to speak at length on the subject of the notification of infectious diseases, which is so specially important as a means to enable us to discover the habitats of disease, and to observe the behaviour of epidemics. I shall also enter fully into the subject of isolation or infectious hospitals, which is of so much practical importance to medical officers of health.

Vaccination comes naturally in this order ; but as this subject is thoroughly taught in the school by my colleague Dr. Cory, I should confine myself to indicating the way in which medical officers may limit the extension of smallpox by having vaccination carried out in the houses and neighbourhoods where smallpox has appeared, and this I shall be able to illustrate from my own experience.

Medical inspection has now taken the place of quarantine in this country. I shall describe the regulations so far as they affect port medical officers.

After these subjects, which will be dealt with in the first three lectures, I should deal with food inspection, giving a description of the parasitic diseases of animals which render the flesh unfit for food, and also the diseases of the cow which are known or suspected to render the milk unfit for human consumption. Here let me observe, in connection with the subject of food, that the parts of it which involve chemical analysis are taught in the chemical laboratory by Dr. Bernays, upon whose co-operation I may fully count. The methods of analysis of food, and also drugs and medicines, form part of the subjects for study by those who present themselves for examination in sanitary science. Some practical knowledge is also required in bacteriology. I may take occasion to say that facilities are afforded for instruction in all these subjects at this hospital.

In the fifth lecture I should enter upon the important subject of drainage, commencing with a description of the principles to be observed in the construction of new houses, and illustrating my remarks by diagrams. I should then describe the defects in drainage commonly met with in any but new-fashioned houses, and the tests that have to be applied in order to discover drainage defects. This will, perhaps, be best illustrated by tests applied in houses under inspection. I shall have facilities for these demonstrations in the Chelsea districts.

At this stage it will be desirable to bring before the notice of the class the work of Dr. Buchanan in showing the relation of subsoil drainage to phthisis, for assuredly no stronger argument can be adduced for the efficient drainage of towns than the diminution in the death-rate from phthisis.

Water supply from the point of view of sanitary engineering as affecting the work of a medical officer of health, will form the subject of a separate lecture. Water analysis and the deductions to be drawn from the results of analysis, will be best taught in the laboratory and there also the way to test the amounts of organic matter in the air of crowded dwellings and public buildings will be shown.

The laws of the realm relating to overcrowding and the suppression of nuisances will form the subject of another lecture.

Unwholesome and offensive trades, the regulation of which forms an important part of the sanitary administration of some districts, will be made the subject of a separate lecture, and I shall endeavour to arrange if possible for visits to some establishment by those who wish for special instruction on these points.

The eleventh lecture I should devote to describing the duties of a medical officer of health, and upon this subject I should be able to give the fruit of my own experience and those with whom I have been intimately associated for several years.

The concluding lecture would be devoted to the subjects of report writing, method of calculating the birth-rates, death-rates and life tables ; the deductions to be drawn therefrom, and the fallacies to be avoided.

The way of writing reports is a matter of much practical importance, and suggestions under this head will certainly be of value to those who are about to undertake official work. You all know, or have heard of the famous reports made by Mr. Jno. Simon, the first Medical Officer of Health for the City of London. For their beautiful English and masterly style they are not to be excelled, and the effect they produced at the time of their appearance, thirty or forty years ago, was most marvellous. I have had occasion lately to consult the newspapers of the period with reference to them. I find that, on November 7th, 1849, nine columns of the 'Times' are devoted to a reproduction of his first report, and that the first leading article of that journal next day commences as follows :—"If any number of this journal ever deserved to be rescued from the usual fate of ephemeral

publications, and regarded as 'a possession for all time,' it is that of yesterday. Contrary as it is to our usual practice to devote so many columns to one subject, unless it be a Parliamentary debate, the extreme gravity of the topic in this instance, and the extraordinary interest of the documents by which it was illustrated, decided us to publish them simultaneously and entire." Then follow comments on the report. But although everyone must admire the literary style of these essays—for they are essays rather than reports—and would enjoy reading them on that account, I should caution those who have to undertake the preparation of reports to avoid adopting the same tone as it is not suitable to the present time. Descriptions of great evils such as those arising from the condition of the very poor are not needed from medical officers nowadays. However necessary it might be to arouse interest upon this and other subjects, such as the pollution of streams with sewage, when Mr. Simon was appointed the first Medical Officer of Health in London, it would be unwise of a medical officer to be occupying his time in describing the unquestionable evils which everybody knows to exist, and about which there is much writing and talking in the newspapers, at public congresses and meetings. It is not only about the evils or dangers to health that the public want to hear from medical officers, but about the remedies which from practical experience seem most likely to be efficacious.

There is another very different kind of report which became common twelve years ago, when numerous medical officers were appointed in all parts of the country, most of them by sanitary authorities who wanted nothing done and who paid some trifling sum to a medical practitioner to act as Medical Officer of Health. The productions to which I refer were of an exceedingly worthless character and I only mention them as subjects of ridicule. Here is a specimen of one which I have lately met with.

"Annual Report for the Borough of ———"

"Pallida mors—pale death—the grim tyrant, who according to Horace, an old Latin author, visits alike the mansions

of the rich and the hovels of the poor has not been absent from our midst since my last report."

Then follows the list of deaths from various diseases which have been registered in the district during the year. The report then continues thus :

"Let us leave them" (*them* refers, presumably, to the persons whose deaths were registered) "in their still, quiet home, where the wicked cease from troubling and the weary are at rest, and with a short sentence heaved upon a sigh, say—Requiescant in pace."

Reports of an entirely different kind are also very common. They are the fruits of a great deal of industry and expenditure of time and in some respects they are undoubtedly meritorious. But they consist mainly of statistics, very rarely used for practical purposes, not very interesting even to those specially devoting themselves to sanitary work, and to the general public, for whose benefit they are compiled, exceedingly dry and unattractive. Reporting is a very essential part of the work of a medical officer of health, as it is often the only means he has of informing the public of what he is doing, and at the same time imparting to them knowledge on matters affecting the public health which it is very necessary they should possess. Those who are preparing themselves for official duties should understand the importance of making their reports businesslike, readable, and interesting.

COCAINE IN DENTAL PRACTICE.

By C. E. TRUMAN.

FOR some time past I have been making experiments with solutions of the hydrochlorate of cocaine, trying solutions of different strength, first using one of 4 per cent., or one grain in twenty-five minims, then a 5 per cent., or one grain in twenty minims; next a 10 per cent., or one grain in ten minims, and lastly, an oily solution of 20 per cent., or one grain in five minims. This last solution I have never injected; I have only applied it to the gum on cotton wool. The 4, 5, and 10 per cent. solutions were the hydrochlorate of cocain dissolved in water, and a little camphor added to prevent decomposition, or, more correctly, a fungoid growth, which soon appears and turns the solution cloudy. These were bought at a chemist's ready for use. First I tried applying the cocaine to the gum round the tooth by saturating a piece of cotton wool and placing it round the neck of the tooth which was to be extracted, applying it several times and allowing sufficient time for the cocaine to be absorbed. As a rule, in most cases after the tooth was taken out, the patients told me that the gum seemed numbed and insensible, and that they could not feel the pushing up of the forceps, but that the actual wrench of taking out the tooth was just as painful as if no cocaine had been used. Still they thought it an advantage to get rid of the pain in the first part of the operation.

When applied in this way I found that if the mucous membrane was healthy and sound, the cocaine was not easily absorbed, and little effect was produced, but in cases where the gum was spongy or excoriated the cocaine was more readily taken up and the result was much better. After this I tried pricking the gum freely all round the fang of the tooth before the cocaine was used. This pricking seemed to increase its effect. On using some to my own hand I found that if the skin was sound it produced no effect, but if there was a cut or raw place in the skin the cocaine rendered it insensible, and I could stick a needle or knife in without feeling it. From this fact it seemed to me unreasonable to expect that this drug could be absorbed by the much harder dentine of a tooth and affect any good in cases of sensitive dentine, as a great many people seemed to hope that it would. It appears to me that it cannot be of any use in these cases, viz. where sensitive dentine has to be treated.

The oily solution used in this way did not seem to have any advantage over the other solutions. It was thought that the oil would render it less soluble in the saliva, and in this way it would be less easily washed from the gum, and so produce anæsthesia more readily.

The next experiment was to use a hypodermic syringe, injecting from five to ten minims of the different solutions into the gum near the tooth which was to be extracted. The local anæsthesia varied very much. Sometimes the effect of the cocaine was good, while at other times it produced very little result.

In the case of a girl who had two lower bicuspid which were much decayed, one on either side of her mouth, I determined to use cocaine to one tooth and not to the other. Into the gum near the left lower bicuspid I injected cocaine three times, as this was the tooth that would cause her the most pain on being extracted. When I took this tooth out she sat still and did not seem to mind it much, but the extraction of the bicuspid on the right side, where no cocaine had been used, was quite a different thing. She objected very strongly.

Now, if the solution was fresh from a chemist's the result

was good, but if the solution had been kept a few weeks it seemed to deteriorate, and to be of very little use. Again, the increased strength of the solution did not produce a commensurate increased anæsthesia, and the amount of anæsthesia produced was very uncertain, or else the faith of the patient varied considerably. I should think it must be very difficult to most people to remain perfectly placid whilst their tooth is being pulled out, seeing and knowing all that is going on, even if they do not feel much pain. This fact should be taken into consideration when we are judging of the amount of pain felt by a patient.

When it is necessary to cut down stumps level with the gum for pivoting teeth or plate work, the pain caused is very unpleasant, as it is impossible to avoid cutting the gum at the same time as the tooth. If cocaine is used to the gum first on cotton wool, and time allowed for it to take effect, the cutting down of the stump is not felt at all, although the gum is bleeding at the time, showing that it has been cut. Again, in putting on the rubber dam, when turning the rubber up round the neck of the tooth with silk, the pain, especially if the silk is pulled out sharply, is distressing. The use of cocaine here would be of advantage.

I next asked a chemist to weigh me out one-grain doses of the solid hydrochlorate of cocaine, and to put each dose into a separate paper, so as to know accurately the amount used each time, and also that by using solid cocaine, and dissolving the powder just before it was injected, the solution might be quite fresh in each case, and the results would thus be more reliable.

The solid cocaine from one of the papers was put into a short test tube, the quantity of water to be used being taken up in the hypodermic syringe to ensure correctness. This water was squirted onto the cocaine, and when the powder was dissolved the solution was taken up again into the syringe and used. I got a syringe with a steel needle, as a needle of this metal is smaller and sharper and therefore hurts less. Its defect is that it gets rusty.

The needle of the syringe was thrust deeply into the gum; one finger held the puncture in the mucous membrane against the needle whilst the cocaine was slowly injected. After the

needle was withdrawn I held my finger for some little time on the hole to prevent the fluid escaping into the patient's mouth, in order that all should go into the gum if possible.

I was anxious that these experiments should be as accurate as I could make them. Those which I mention below were all carried out according to this method.

May 15th.—Girl, æt. 14. One grain of solid hydrochlorate of cocaine was dissolved in ten minims of water, and injected in four injections during seven minutes. Then the three roots were separately extracted of the right upper first molar. She felt no pain, but fainted after the operation. I was not sure if this was the effect of the cocaine or the dread of having her tooth out.

May 19th.—The same patient. This time only half the quantity of cocaine was used, *i. e.* half a grain of solid in five minims of water. Five minutes after the injection the left first upper molar stumps were extracted. She felt a little pain, but very little, and there was no faintness nor any other general effect.

June 5th.—The same. This was the third time this patient had had cocaine used. An injection of half a grain of solid in ten minims of water in two injections, one immediately after the other, was again used. Five minutes were allowed for the cocaine to take effect, and then the two lower molar stumps on the left side were extracted. She felt very slight pain and there were no constitutional effects.

May 21st.—One of the nurses. One grain of solid cocaine was dissolved in fifteen minims of water and used in four injections spread over about ten minutes. The patient complained of a tingling sensation in the middle and ring fingers of the left hand, *viz.* on the opposite side to the injection.

I extracted the lower bicuspid on the right side and she felt only slight pain. In this instance there was no unpleasant sensation except the tingling mentioned above.

May 21st.—Man, æt. 22. One grain of solid cocaine in nine minims of water was used in four injections spread over ten minutes. I extracted the second upper bicuspid on the right side of the mouth. It is much easier to inject into the lingual side of the upper jaw than into the buccal; the

mucous membrane is looser and not so firmly held down to the bone, and therefore the needle penetrates better and the fluid passes into it much more freely. For these reasons the anæsthesia in the upper jaw is much more perfect.

This patient did not feel the extraction of his tooth at the jaw, but complained that he felt pain in his temple when the tooth was being taken out.

May 21st.—Man, æt. 19. One grain of the powder dissolved in five minims of water was injected, mostly into the lingual side of the upper jaw. The patient turned very pale, black under the eyes, and beads of perspiration appeared on his forehead and face. His pulse was very feeble, hardly to be felt. In this case I think there is no doubt that the faintness was due to the cocaine. I at once extracted the upper molar as the best stimulant, his pulse revived, and he felt less faint very soon after the extraction. This patient looked weakly, but said he never remembered to have fainted before. He felt no pain in his jaw when the tooth was extracted, but did feel pain in his temple. No remedies were given for the faintness except extracting the tooth, making him lie down on the couch, and giving him some water. He was soon all right again.

May 21st.—A woman, æt. about 30. I injected two minims of a 10 per cent. solution made at the time from the powder. This small quantity was used because she told me, after I had begun to inject the cocaine, that she was nursing a baby, and not knowing what effect it might have on the nursing, I did not inject any more after she mentioned this fact. I concluded that so small a quantity would have no effect, but she assured me she felt no pain when the lower molar was extracted.

May 21st.—A woman, æt. 25, a weakly, anæmic patient, and very nervous.

She complained of feeling faint after three minims of a 10 per cent. solution had been injected into the upper jaw. I extracted an upper molar. She said that she did feel pain, but not much.

May 28th.—Girl, æt. 16. Half a grain of the powder dissolved in five minims of water was used in four injections spread over five minutes.

I extracted the second right lower molar, but the result was not good. No doubt some of the cocaine escaped into the mouth, for in the lower jaw the gum is very tense, so that the injection does not readily pass into the mucous membrane, and it is hard to get the needle far enough into the gum. Also, if the patient moves the needle is jerked out.

May 28th.—Boy, æt. 11. I dissolved half a grain of the powder in five minims of water, and used it in three injections during five minutes and then extracted the right upper molar. The boy felt no pain. There was no effect on radial, and there were no general effects.

June 3rd.—One of the sisters. One grain of the powder was dissolved in four minims of alcohol. The pulp of the second lower molar on the left side was exposed. The rubber dam was used, the cavity in the tooth mopped out with the above solution, and the cotton wool left in for a short time. The soft dentine of the tooth was then gently removed with an excavator, every now and then using more of the cocaine solution. As the pulp became more freely exposed, the cocaine was more readily absorbed by it, and the anæsthesia became more marked. With an engine burr I freely removed the whole of the pulp in the crown, and afterwards, using more cocaine, that in the fangs. I stopped the tooth the same day ; the patient only winced now and then, and did not feel much pain. The pulp bled a good deal.

June 4th.—Boy, æt. 16. Half a grain of the powder dissolved in eight minims of water was used in two injections. Five minutes after I extracted the first left upper molar. The boy felt very little pain, and the result was good.

June 4th.—Boy, æt. 14. Half a grain of the powder was dissolved in eight minims of water, and used in two injections. Five minutes after the injection I extracted the first right upper molar. This patient made a good deal of fuss at the prick of the needle, and also at the extraction of the tooth. Owing to his restlessness most likely all the cocaine was not injected. The result was not good.

June 11th.—Harry P—, æt. 9. In the case I am about describe the effect of the cocaine was more marked than in

any other I have known, and the results were better, perhaps because it was the youngest patient.

The amount injected was half a grain of the powder dissolved in five minims of water, and used in two injections. The boy began to cry and made a great fuss at the prick of the needle. About five minutes after the cocaine had been injected he began to look drowsy and said he felt so. In fact I think he would have gone to sleep if I had had time to allow him to do so.

In this case both the upper central incisors were twisted with their edges pointing nearly directly outwards towards the upper lip, viz. almost at right angles to their normal position, or with their lingual surfaces face to face. I determined to turn them round at once. With a pair of ordinary straight incisor forceps I twisted both the teeth one after the other into their right positions. My dresser, Mr. Clark, had kindly taken a model of the boy's mouth, and to this plaster model had made a vulcanite splint, first cutting off the two central incisors and replacing them on the model in the position they ought to occupy. This splint was put on directly I had turned the teeth, and thus held them in their normal position.

During the whole of this operation the boy sat perfectly still, and neither made a sign of pain nor moved in any way to interfere with me. The difference was most marked between his crying and fuss at the prick of the needle and his perfect quietness whilst I was turning the teeth, which would be quite as painful as taking them out. The vulcanite splint held firmly in place without tying. The patient still complained of feeling sleepy after it was all over.

The following Friday, June 18th, I took off the splint. The teeth were both in good position; the left central incisor was almost as firm as if it had not been touched; the right one was slightly loose. In all other respects both teeth seemed quite normal. I sent him away without any splint, and told him to be at the hospital the following Friday, June 25th; however he did not come, so I concluded that he was all right.

June 25th.—Man, æt. 20. Half a grain of the powder dissolved in five minims of water, injected at once into the

lingual side of upper jaw. I applied another half grain of the powder on cotton wool to the gum round the tooth which was to be taken out, and extracted the roots of the right upper second molar. The patient said that he felt very little pain, but complained of dizziness.

July 2nd.—A woman, æt. 20. One grain of the powder dissolved in ten minims of water. Half of this was applied to the gum on the right side of the lower jaw, and the other half was injected into the fistulous opening of an alveolar abscess connected with the second lower molar. This patient was very nervous, and moved whilst I was injecting the cocaine, so some of it came out into her mouth.

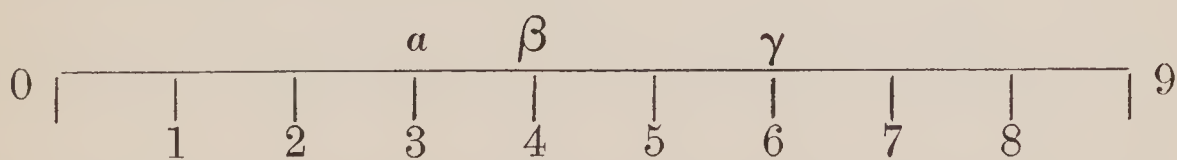
I dissolved a second grain of the powder in ten minims of water, injected half of it into the gum with better success this time, and applied the remainder to the gum of left side as before. She complained of feeling sick and faint, and seemed rather bewildered. I extracted the second molar, first molar stumps, and second bicuspid, all on the left side of the lower jaw. She did not feel much pain, and soon recovered from the sickness and faintness. It appears she is subject to fainting fits, but she did not faint away, and did not appear to me to be very faint. No other patient to whom I have used cocaine has complained of feeling sick, although it is said to be a common effect of injecting it.

SOME ASPECTS OF THE VACCINATION QUESTION.

BY ROBERT CORY, M.A., M.D.

PRIMARY VACCINATION.

WE regard vaccination in the human subject as effecting a progressive modification of the organism which may be represented diagrammatically thus :



Let the line 0—9 represent the period intervening between insertion of lymph on the occasion of the vaccination of a person, and full protection against smallpox (or further vaccination) resulting therefrom. Let the line be divided into nine equal portions, representing the several days of this period.

At zero an unvaccinated infant is altogether unprotected against smallpox ; at the other end, after nine days it is, if efficiently vaccinated during the first day, completely protected against that disease.

Now, Marson laid down as law, and it has come to be generally accepted, that the normal period of incubation of

smallpox is twelve days. He went so far, indeed, as to affirm that if you vaccinate a person who has been incubating smallpox for about three days but less than four days, you do not prevent that person suffering from smallpox though you modify the gravity of his attack. Further, Marson affirmed that if you vaccinate a person who has been incubating smallpox for more than four days you do not prevent him suffering smallpox as badly as if he had never been vaccinated at all.

We altogether believe this creed of Marson's, having witnessed not a few cases behaving in obedience to his law. Accordingly we have marked on the above line the end of the third and fourth days, which are especially important days, by the Greek letters α and β ; and we have further marked the sixth day with the letter γ for a reason which will presently appear.

Every vaccinated person may be regarded as tending, subsequent to his vaccination, to lose more or less slowly the fulness of the protection acquired on the ninth day, and as tending slowly to retrace his steps backward along our line towards the zero from which he started when he was vaccinated. Theoretically, we may consider him in his retrograde progress as becoming successively once more susceptible to vaccination at γ , to mere attack by smallpox at β , and to unmodified smallpox at α . In other words, he will at the point γ be susceptible if revaccinated, though if revaccination be neglected he will not at this stage of his retrogression take smallpox; at β he will take modified smallpox while on reaching α he is liable to smallpox unmodified by his previous vaccination.

There are, however, several reasons why all persons do not retrace their steps towards zero of our line with equal rapidity, some of which we will enumerate.

Differences in the amount of the original vaccination of one person from another will account for much of the difference in the pace by which they retrograde towards zero. One person who has been vaccinated in four or five places of average size tends to retrograde much more slowly than another of like age vaccinated at the same time in only one place of similar size. Hence, among persons of equal age, the greater liability of those who have been badly vaccinated to attack by smallpox.

Another factor of rapid retrogression is the use of vaccine lymph of inferior quality, lymph, for instance, which has been carelessly selected in vaccination during several successive weeks, or which, as is more common, has been taken again and again from faulty or irregular vesicles owing to limitation of choice from paucity of vaccinifers. In either case the lymph stock steadily deteriorates. The chief characteristic of lymph degenerating from such causes is the tendency to early development of the areola about the vesicles, that is of vesicles which possess very marked areolæ on the morning of the eighth day, or even earlier, instead of on the ninth day. Persons vaccinated with deteriorated lymph of this class unquestionably return to their prevaccinated condition much earlier than persons vaccinated with thoroughly sound lymph.

A third factor is "individual peculiarity," a convenient phrase which cloaks much ignorance. In the present connection, however, a definite meaning attaches to it; for persons, and especially persons of the same parentage, have been known to be severely attacked a second and even a third time by smallpox. This has to be borne in mind in that which follows.

REVACCINATION.

Our views respecting revaccination are broadly these : given a person successfully vaccinated in infancy and conveyed thereby to the safe end of our line. He has in a given period of years retrograded along the line to, say, the point γ . If he be now revaccinated he will not of course have so far to travel again in regaining the safe end of our line as on the occasion of his infantile vaccination. Accordingly we should suspect his revaccination to run a much more rapid course than did his primary vaccination. And this is precisely what occurs; the areola in revaccination invariably makes its appearance at an earlier and sometimes at a much earlier date than in primary vaccination. Further, we believe that, other things being equal, the date of the appearance of the areola in revaccination is a sure index of the stage of backward travel attained by the person operated on, and, roughly, that the shorter the distance retraced towards zero the earlier the areola

of revaccination. Hence, we consider that by the behaviour of a revaccination we are able in a particular instance to judge whether and when a further future vaccination of the individual is advisable.

In illustration we will suppose a lad, duly vaccinated in infancy has (without suffering smallpox) attained the age of fifteen and that his vaccination was successful as regards four insertions, the resulting areola reached its height on the sixth day after vaccination and was declining by the eighth day when the lad was inspected. In such a case we may believe the lad at fifteen years of age to have retrograded on our line to about the point β , and should consider him at this time to be liable to an attack of modified smallpox. Further, we should believe that, in so far as his primary vaccination had not protected him for fifteen years, neither would his revaccination protect him for fifteen years, and should therefore advise a third vaccination at the end of ten years. But if in this lad's case the areola had developed on the fourth instead of on the sixth day we should regard him as having receded in the fifteen years since his primary vaccination to about the point γ on our line and should consider him, if now revaccinated, as safe against attack for at least an additional fifteen years instead of ten years.

In view of the above considerations certain experiments of our own become interesting and we believe receive their interpretation.

We have vaccinated an infant by a single insertion repeated day by day for eleven days with lymph preserved in eleven tubes all taken at one time from the same source. The results were curious. The duration of the vaccine disease in this case was in no way prolonged; the ninth day was the day of acme of all the successful insertions, and of insertions made on and after this day not one was in the least degree successful. On the ninth day then, but no sooner, had the system of this infant completed that modification which rendered it immune against vaccination. And it is especially noteworthy that the vaccination insertion of the fifth day hurried through its course like a revaccination, and in five days (the ninth day reckoned from the insertion of the first day) had, like the others, reached its acme and with them commenced at once to fade.

Other experiments which we have made, and which receive light from the above view, are those published in vol. iv, p. 147, of the 'Transactions of the Epidemiological Society.' There details are given, but here we may just shortly restate their general purport. Children possessed of supernumerary fingers were vaccinated by a single insertion of lymph upon the supernumerary finger, and this finger was amputated, together with the vaccine vesicle, on a varying number of days, after the vaccination; and these children were further vaccinated on the arm in the ordinary way a month after the finger was removed. The vaccination done on the arms one month after, resembled revaccinations, and they may be explained by supposing the vaccine disease to have been arrested absolutely by the amputation, and that when they were again vaccinated a month afterwards the vaccine disease had not so far to travel to reach the ninth day, so that it hurried through its course like a revaccination. For instance, we removed a finger on the fifth day after we had vaccinated it; we again vaccinated the child on the arm and this vaccination exactly resembled a revaccination. We may suppose, therefore, it was arrested on the fifth day, and that when we again vaccinated it it took up the disease at the fifth day and did not begin afresh, thus having only a short distance to travel along the imaginary line before it reached complete protection.



THE RESULTS
OF
PREPROSTATIC PUNCTURE OF THE URETHRA
IN FORTY-SIX CASES IN WHICH THE OPERATION HAS
BEEN PERFORMED IN THE HOSPITAL DURING
THE PAST TEN YEARS.

BY G. H. MAKINS,
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THE compiler of the following paper would have felt some hesitation in treating of an operation which, since the publication of Mr. Simon's paper,¹ has been an established practice at St. Thomas's, were it not that, in spite of the success with which its adoption is attended, it seems to be little practised outside the schools in which it was originally brought forward, and no series of cases appears to have been published. Mr. Erichsen² says, "The operation is best adapted to those cases in which the patient is suffering from actual retention at the time the surgeon is called upon to operate; the objection to it is that it does nothing to relieve the stricture, unless this *should happen* to yield after the irritation of the passage of urine is cut off."

Again, a writer of first-rate authority, Sir Henry Thompson, not only does not recommend the operation, but speaks of it

¹ 'Medical Times and Gazette,' April 10th and 17th, 1852; also these 'Reports,' vol. x, 1879, p. 139, *et seq.*

² 'Science and Art of Surgery,' 8th edition, vol. ii, p. 1112.

as one of uncertainty and difficult of performance. Thus,¹ “The urethra *may* be reached from the perineum behind the stricture—it is no easy thing to find the urethra behind the stricture, and a man may make a serious wound in the perineum and not find the stricture at all.” A similar procedure, somewhat facilitated by the use of a staff, is, however, highly recommended as easy and safe where a perineal drain is required.²

Early this year also a case has been published by Mr. Treves in support of the old practice of establishing a permanent fistula above the pubes.³

The indications for, and advantages of, this operation have been so admirably laid down by Mr. Simon and Mr. Cock as to render the endeavour to lay down any general rules quite unnecessary; the writer will therefore strictly confine himself to points illustrated by the material to hand, and confirming what has been urged by the authors mentioned. The cases will be found shortly arranged in a tabular form, while two cases of a somewhat uncommon nature are shortly detailed in the text. The best thanks of the writer must here be offered to the surgeons to whose kind permission he is indebted for the use of the cases, a permission which on the part of the late Mr. Mason terminated a long series of similar kindnesses.

The first point to which allusion must be made is to the indication which led to the performance of the operation. In twenty (43·4 per cent. of the whole) it was resorted to for the relief of acute retention of urine, the passage of a catheter having proved impracticable; of these, four eventually died, two from exhaustion and uræmia, one from pyæmia, and one from an unascertained cause. In speaking of the results later, it will be shown that none of these cases could be said to have died directly from the operation, although it proved incapable of more than temporarily prolonging existence.

In twelve cases (26 per cent.) the indication was less complete chronic obstruction, in which either no instrument or only a very small one could be introduced; in the latter cases it being considered that the time gained in ability to commence

¹ ‘Diseases of the Urinary Organs,’ 7th ed., 1883, p. 61.

² ‘Diseases of the Prostate,’ Student’s ed., 1883, p. 114.

³ ‘Lancet,’ vol. i, 1886, p. 1161.

local treatment of the bladder justified the procedure. Of these cases also four eventually died, one of bronchitis and pulmonary congestion, and three of gradual uræmic poisoning.

In the third series of cases, fourteen in number (30·4 per cent.), the operation was performed for retention of urine complicated by extravasation. Here, as would be expected, the lowest percentage of cures was obtained, as in five death resulted in spite of the operation. Some remarks will be added later as to the nature of the extravasation in these cases. In one instance (No. 31), not included in the above numbers, the operation was successfully performed in a case where a large hæmatoma of the scrotum was complicated by a false passage made by the patient himself in the attempt to pass a catheter. Two cases, included under the head of extravasation with retention, seem of sufficient interest from their comparative rarity to be shortly detailed here; they were both under the treatment of the writer.

CASE 1.—R. F—, æt. 38, admitted suffering with acute retention. Had never been previously laid up. Married; four children alive. Never remembers to have made water from the end of his penis, but always from an opening behind the corona and a little to the left side. Has always urinated rather frequently (every three or four hours), but never experienced any difficulty until twelve months ago, when micturition became more frequent and he had to strain considerably. Since then the urine has been thick, offensive in odour, and containing slime. The penis became swollen at the same time, and it has continued more or less swollen and inflamed ever since. For the last few days all these symptoms have been aggravated and he has been able only to pass his urine in very small quantities and with great pain.

March 22nd, 1883.—On admission, bladder distended to umbilicus, occasional small dribblets of urine. Penis red and swollen, prepuce much enlarged by chronic oedema; the prepuce only exists over the upper surface of the glans, where it projects as a knob similar to the one seen hanging below in an old paraphimosis. No sign of a meatus; drops of urine come from a fistulous opening behind the glans to the left of the median line; there is much thickening around this, and neither

a soft catheter nor a probe can be made to enter. Patient in much distress; frequent rigors. Temp. 104.3° .

At 7.30 p.m. ether was administered and an attempt made to find a pervious opening. A large abscess was opened in the penis and the swollen prepuce removed, but all efforts proving futile, the urethra was punctured and a perineal catheter introduced. He improved at once, the bladder being washed out daily, but as no urine could be passed from the penis without much straining, and no instrument could be made to pass down it, a bullet probe was passed forwards from the perineal wound on the eighteenth day and cut out through the old opening, which was at the same time enlarged towards the end of the penis; a No. 8 gum elastic was then passed into the bladder and tied in. After this the patient made a rapid recovery, a No. 9 silver was passed daily, and he left the hospital on June 9th, passing urine more freely than he had ever done in his life. The opening was still in about its old position, but the urine was clear and healthy.

The operation here, in addition to the opportunity given for effectual local treatment of the cystitis, allowed a good viable passage to be established through the anterior part of the penis without any difficulty, and this when numerous attempts to pass any instrument from before backwards had failed from the tortuous nature of the existing fistula.

CASE 2.—E. S—, æt. 40. Previous health good, except for trouble in urinating. Has suffered with symptoms of stricture for the past sixteen years; says he has always been worse after instrumental treatment.

During the last week greatly increased difficulty in urination; has had a catheter passed several times, but only small quantities of urine withdrawn. A No. 2 silver was passed the day before admission; no urine escaped by the instrument, but its withdrawal was followed by a gush. Since then the patient has been in much pain, although his urine has dribbled away, and redness and swelling have developed in the hypogastrium. A No. 3 catheter does not pass beyond the base of the scrotum, and up to that point three separate strictures are felt.

October 8th, 1883.—On admission, in great pain, temp.

103.2°, shivering slightly, pulse 100, fair. Hypogastrium very prominent, redness and œdema extending from umbilicus to groins and involving penis and scrotum; perineum quite free. Urine dribbling slowly.

6.30 p.m.—Preprostatic puncture of urethra; about 30 oz. clear urine drawn off, and two incisions made in hypogastric region down into abdominal muscles; no urine flowed from latter.

9th.—Urine has escaped freely by the perineum, and patient has been much relieved, but although the swelling of the penis and scrotum has subsided the redness and prominence of the hypogastrium persists. Patient is in pain, his tongue is dry and cracked, he vomits, and there is some tympanites.

At 4 p.m. ether was again administered; an incision in the median line above the pubes was carried down to the pelvis, which was found infiltrated with stinking pus and urine; the finger could be passed down almost to the perineal wound so a pair of dressing forceps was pushed through and a drainage-tube drawn up so as to ensure free exit for the decomposing urine from the pelvis; a No. 8 was tied into the bladder through the perineal wound.

After the second operation he improved slightly, but developed symptoms of pyæmia, and died on the fifth day.

At the autopsy the following condition was found:

No general peritonitis and no effusion into cavity, slight local peritonitis of the coils of small intestine in contact with the fundus of the bladder. In the hypogastric region a huge sloughing cavity extending from the umbilicus down into the pelvis on the left side to just below the brim, on the right down by the side of the rectum, and upwards into the lumbar region three inches above the iliac crest. The extravasation had taken place solely into the space between the peritoneum and transversalis fascia.

On removal of the bladder and urethra the following condition was found. In the penile urethra were two slight strictures, and a third hard tight one was situated in the spongy portion. The roof of the membranous urethra was considerably elongated, and at the point at which it perforated the triangular ligament a sloughy opening existed,

nearer the prostate a second opening in its floor (operation). On opening the bladder a sacculus the size of a small orange, communicating with the main cavity of the viscus, and lying between it and the pubes, was found, the presence of which accounted for the abnormal length of the membranous urethra. The production of the false passage was thus readily explained; the surgeon had depressed the catheter at the usual stage, and finding difficulty, and supposing it due to the gripping of the instrument by the stricture in the spongy urethra, had used sufficient force to drive the point through the abnormally elongated roof. Both purulent pleurisy and pericarditis existed.

This case is instanced as uncommon, and one in which no other operation could have offered so good chances of relief, the exit of urine being insured, posterior to the wound in the roof of the urethra. It is to be regretted that the incisions in the hypogastrium were not carried deeply enough on the first day, but it is unlikely that the pyæmia which carried off the patient would have been thereby prevented.

In addition to these two cases, in No. 31, operated on by Mr. Croft, an excellent result was obtained in a case of special character, the free exit of the urine by the perineal catheter averting the danger of extravasation of urine into tissues already infiltrated with blood. A somewhat similar case, No. 22, also operated on by Mr. Croft, was equally successful, although here the presence of a stricture necessitated a secondary operation.

It may be mentioned that stricture was present in forty-five out of the forty-six cases, and in seven of them the stricture was traumatic in origin; in none of the latter did death occur.

With regard to the difficulties of the operation, the cardinal one, that of finding the urethra, is shown by the statistics to be unworthy of the importance which has been assigned to it by objectors to the practice. On reference to the table we find that in four instances the operator was unable to convince himself at the time of operation that the urethra was opened, so that the final stage, that of introducing a perineal catheter, could not be proceeded with. In two of these cases the

patient was aspirated over the pubes, and in two the bladder was punctured per rectum, but in three out of the four these measures proved to have been unnecessary, for urine flowed freely by the wound after the operation, showing that the real difficulty had been in passing the perineal catheter, no doubt due in part to displacement of the urethra from its normal position, and in part perhaps to the smallness of the opening made in consequence.

The fourth patient died of acute pyæmia; in this case a permanent cannula had been left in the rectum. The two cases in which the perineal puncture was supplemented by suprapubic aspiration were both under the care of the writer; in one of these chronic suppuration and extravasation of urine in the perineum had been going on some time, and in the second not only were numerous fistulæ present, but the patient had already undergone perineal section at the hands of Mr. T. Smith four years previously. In analysing the cases it appears that perineal abscesses existed in seven cases (15·4 per cent.), and in six others (13 per cent.) urinary fistulæ were present, and in one instance of each the writer, while opening the urethra, failed to pass the perineal catheter.

The complications are unusually few in an operation of such importance. A glance at the table will give them all; they are of no greater magnitude than those often following catheterisation in difficult cases.

Excepting the four cases already mentioned the perineal catheter was introduced in every instance; it was retained for a variable period, not specified frequently enough in the notes to allow any average number of days to be given, but as a general rule it was not removed before the track of the wound became lined with granulations, and where difficulty in micturition through the puncture was experienced it was retained until an instrument could be passed per urethram, so as to ensure the greatest amount of rest possible for the strictured urethra.

In twelve cases out of the whole number only was any further operation needed; two of these secondary operations were done on cases which ultimately died. Among the thirty-one cases which recovered, external urethrotomy was performed eight times, internal urethrotomy twice. The presence

of the perineal wound robs the external operation of its chief objection, and hence in this class of case it obtains the preference. The stricture in four of these cases was traumatic in origin, and as only seven cases of traumatic stricture are included, we find that secondary operation was needed in more than half (57 per cent.); while in the other cases only four out of twenty-seven (14·8 per cent.) needed any secondary operation. In none of the cases where extravasation of urine led to the retention was any secondary urethrotomy needed. These results very strikingly illustrate the rule laid down by Mr. Simon,¹ that the operation confers "maximum benefit with cases where recent inflammatory swelling or spasm has contributed to narrow the canal; minimum in proportion as the stricture is constituted of cicatrix; and this minimum becomes zero in comparatively rare cases where a length in the continuity of the canal has become permanently lost in solid scar."

The notes unfortunately do not allow the date of closure of the perineal wound to be given, but the average in twenty-seven cases in which it is given is fifty-seven days.

The actual results as exhibited by the table are as follows : Of the forty-six cases thirty-one were for the time cured, that is to say, that the patients left the hospital passing catheters for themselves, the average size of which was 10, in no case less than 8, and without symptoms of cystitis. In one case where repeated supra-pubic aspirations had failed to restore power of contraction to an atonic bladder, the patient's condition was materially relieved by the operation, and in one case the operation entirely failed in its object, as the patient left the hospital as he entered it. It may be mentioned that in this latter the writer intended to have opened the bladder over the pubes, as in a case recorded by Mr. Howse,² but the patient left the hospital to go to a convalescent home and never returned. The writer saw a case of Mr. Simon's in Göttingen, in 1880, in which this operation had been performed and a permanent perineal fistula established. By the aid of a supra-pubic incision, Prof. König had re-established the continuity of the urethra, and at that date the patient was

¹ Loc. cit., p. 141.

² Clinical Society's 'Trans.,' 1879, vol. xii, p. 9.

passing a full-sized bougie, what the ultimate prognosis may have been is unknown, but it would no doubt be at least as good as in cases of traumatic stricture necessitating external urethrotomy.

In thirteen cases the operation was eventually followed by death, but in only one of these did it fail in affording relief, and in that one only, could it be regarded as being actually concerned in the fatal result. The last case moreover was unfortunately complicated by the necessity of puncturing the bladder per rectum and introducing a temporary cannula, and the resulting pyæmic infection might with equal reason be attributed to the latter wound, which was in direct continuity with a bladder containing fetid urine without the free outlet afforded by a preprostatic opening.

With a view to supporting the harmless nature of the operation itself the actual cause of death in the fatal cases will be shortly analysed. The average duration of life subsequent to its performance was three weeks, with extreme limits of four and forty-five days. In four cases only did the patient die within the first week. The two earliest deaths occurred each on the fourth day from uræmia. In one of the cases there was extravasation at the time of operation, and well-marked surgical kidney was found at the post-mortem; in the other no post-mortem was made; the latter slightly complicated by the occurrence of some hæmorrhage from the wound on the second day, not sufficient, however, to account for the fatal result. Two deaths from pyæmia occurred on the fifth day; in one of these extravasation was present; the other has been referred to in the last paragraph. A fifth case died on the thirteenth day, but only after the performance of a supplementary internal urethrotomy done on the twelfth day. A sixth case died of chronic pyæmia on the forty-second day; in this extravasation was present at the time of operation. In one case sudden death occurred from cause unknown, in one from acute pneumonia, in one from bronchitis, and in the other four from uræmia. Thus, we have in the whole number, 13 deaths = 28·2 per cent., made up by,—uræmia 7 = 15·2 per cent., pyæmia 3 = 6·5 per cent., lung complication 2 = 4·3 per cent., and cause unknown 1. In the thirteen fatal cases the indications were, acute retention four, extravasation and retention five, chronic

obstruction with dribbling and impermeable stricture four. In two cases secondary operations were undertaken before death, in one internal, in one external urethrotomy.

A remark may here be made as to the influence of existing extravasation of urine on the prognosis. If the fourteen cases in which extravasation was present be subtracted from the total we at once remove five fatal cases, and reduce the ultimate death-rate to 25. Extravasation as affecting this operation may be divided into three categories, cases of acute general, acute local (urinary abscess), and chronic extravasation. It is rare that the operation is resorted to in cases of general extravasation since free incision is usually just as effective, but in cases where extravasation has only just commenced, it is a valuable addition; in cases of localised or chronic extravasation it is of the greatest value, as the direct opening is greatly superior to the indirect channel usually established by incising the abscess only. The most important point with regard to this in our cases is, that with the removal of the extravasation cases we remove two cases of pyæmia, leaving only the one where rectal puncture was performed. The possibility of pyæmia occurring cannot be regarded as a contra-indication under such complicated conditions, but our numbers, I think, support the inference that without extravasation pyæmia is not specially to be feared in spite of the unfavorable position of our wound. It may be noted that of the six cases originally published by Mr. Simon, extravasation existed in five.

Lastly, it may be asked whether in the cases here treated of, any other operation could with advantage have been substituted. The cases form but a small number of those of stricture and retention treated in the hospital during the period (less than 9 per cent.), as will be noted, they were all old-standing ones, the average duration of symptoms in thirty-eight cases where particulars are given being twelve years and eight months, while the average age of the patients was forty-six, or, if the seven cases of traumatic stricture be subtracted, forty-eight and four months. In all cases the condition of the urine was bad, in some extremely fetid; severe constriction existed, complicated in three instances by enlarged prostate, in thirteen by extravasation of urine, in six by urinary

fistula, an indication in itself for external urethrotomy, while in every fatal case where a post-mortem examination was made serious renal disease existed, as no doubt judging from their symptoms was the case in many of the patients who recovered.

Assuming, as we must do from the nature of the cases, that they demanded instant relief, the only alternative operations seem Wheelhouse's perineal section, puncture over the pubes, or through the rectum.

As to the first, its uncertainty, the time necessitated for its performance, and the increased danger which Mr. Simon and others have shown to be inseparable from immediate division of the stricture, would seem to be decided contra-indications. Mr. Cock¹ himself has many years ago pointed out the disadvantages attendant on puncture per rectum, such as its uncertainty and difficulty in some cases, the danger of injuring the peritoneum, and the inadvisability of implicating another viscus. Supra-pubic puncture is the only alternative which offers such certain immediate relief and which may be prolonged indefinitely by introducing a cannula. This method is well suited to cases of retention dependent on congestion where a catheter cannot be passed, or which are complicated by false passage, stricture complicated by false passage, especially a first attack, or when the urine is in good condition, also in cases of acute disease, such as pneumonia, in which an attack of retention may occur, and in some old cases of malignant disease with implication of the urethra in which a more serious operation is contra-indicated as not worth while. In cases such as are included in our table, however, its use is to be deprecated since it must always be dangerous when the urine is fetid. In looking up these cases I came across two instances of the danger of supra-pubic aspiration, in one (No. 32 of the table) an abscess formed in the pelvis and another died of peritonitis. If a permanent opening is needed the supra-pubic region is much less convenient, and the sphincter at the neck of the bladder is not utilised as in the preprostatic operation.

The cases then seem to warrant the advantages which have already been claimed for the operation, viz. that it is not

¹ 'Guy's Hospital Reports,' vol. xii, 1866, p. 267, *et seq.*

in itself serious, that it can be performed in a few minutes, that no unnecessary interference with other organs is incurred, that the patient is relieved from discomfort and placed out of danger, any further infiltration is prevented, the kidneys are relieved from danger of back flow, and the local treatment of the bladder can be at once commenced. Meanwhile rest is given to the stricture and time gained for the absorption of inflammatory products, no danger of causing abscess or peritonitis is incurred, a straight and direct way into the bladder is usually procured through which a catheter can be introduced, and if necessary the finger to explore the bladder, calculi in the prostatic urethra may be removed, and time is gained for such improvement in the general condition to occur as may allow secondary operations to be safely undertaken.

TABLE OF CASES.

Preprostatic

No.	Name.	Age.	Surgeon.	Nature of case.	Cause and duration.	Site of obstruction.	Indications for operation.
1	N. W.	40	Mr. Croft	Stricture, extravasation	Gonorrhœa 8—9 years; signs of stricture 6 years	1½ inches from meatus	Retention
2	T. B.	55	„	Stricture, urinary fistula	Symptoms 20 years	Penile urethra 4 inches down	„
3	H. C.	19	Mr. Jones	Stricture	Fall astride plank, 10 years	Membranous urethra	Retention 24 hours, complete
4	G. W.	40	Mr. Croft	„	Gonorrhœa 17 years; signs of stricture 6 years?	„	Several attacks of retention; catheter impracticable
5	G. R.	25	„	Stricture, perineal fistula	Gonorrhœa 6 years; signs of stricture 5 years	Meatus, 2 in penile urethra, and 1 at junction of membranous part and bulb	Impermeable stricture; perineal fistula
6	J. H.	27	„	Stricture	Trauma 14 years	Membranous urethra	Incomplete retention; dribbling; catheter impracticable
7	A. S.	37	Mr. Mackellar	„	5 years	Penile and junction of membranous and bulbous parts	Retention
8	J. W.	43	Mr. Makins	Stricture, perineal abscess	Signs of stricture 3 years	„	Retention 48 hours

Puncture.

Difficulties or complication.	Perineal catheter.	Urethral catheter.	Secondary operation.	Time under treatment.	Notes.
Slough of scrotum ; Abscess of abdominal wall	—	—	—	138 days. C.	Stricture near meatus dilated with laminaria.
Rigors ; cellulitis of scrotum ; Extravasation 20th day	Yes, No. 9, 17 days ; replaced later	17th day No. 6	—	C.	Very feeble man, looking ten years older than he was, with scarcely perceptible pulse at time of operation.
—	No. 10, 1 week ; replaced on 13th day and kept in till 23rd	30th day No. 10, easy	7th day external urethrotomy	58 days. C.	Rigor after external urethrotomy, and again 3 days later, hence reintroduction of perineal catheter.
—	No. 4, 17 days	28 days catgut ; 36th day No. 10	—	81 days. C.	Attacks of retention relieved by hot baths prior to operation. No catheter could be passed.
2 rigors ; urethral discharge	No. 6, removed on 10th day ; No. 10, replaced on 12th, kept in 1 month	110 days No. 10,	—	161 days, C.	Gonorrhœa ; orchitis when admitted ; also a perineal abscess. 196 days in hospital.
2 rigors	No. 8, 3 weeks	42 days No. 10	External urethrotomy 42nd day	142 days. C.	No catheter could be passed after first operation in spite of repeated trials ; this was also the case during the week which elapsed between admission and operation.
Non-escape of urine ; hæmorrhage	Passed later	6th day	Puncture per rectum ; perineal section	68 days. C.	After making incision for puncture no urine escaped, and perineal catheter could not be passed ; in addition there was free hæmorrhage. The bladder was tapped per rectum, and the perineal wound enlarged and plugged ; later a catheter was passed by the perineal puncture.
Perineal catheter could not be passed and bladder did not empty ; aspiration	None	10th day filiform bougie ; No. 9 before discharge	Aspiration over pubes	65 days. C.	Urine escaped perfectly freely by wound after bladder had once been emptied. Course of urethra distorted by perineal abscess.

No.	Name.	Age.	Surgeon.	Nature of case.	Cause and duration.	Site of obstruction.	Indications for operation.
9	J. S.	41	Mr. Jones	Stricture	Kick in perineum, 10 years	Penile and junction of membranous and bulbous parts	Retention incomplete; dribbling; no catheter
10	J. S.	50	Mr. Mason	„	—	—	Retention incomplete 4 days; no catheter
11	T. R.	55	Mr. Clutton	„	—	—	Retention; previously frequently aspirated once daily; atony of bladder
12	J. H.	35	Mr. Jones	„	20 years trauma; signs of stricture 18 years	Membranous urethra	Retention
13	D. L.	49	Mr. Mason	Stricture; perineal abscess; extravasation	Symptoms 2½ years	„	Retention 4 days; relieved by No. 4 catheter
14	J. E.	38	Mr. Croft	Stricture; perineal abscess	Symptoms 7 years	Bulbous and membranous urethra	Retention 3 days
15	T. C.	41	„	Stricture	Symptoms 12 years	„	Retention 40 hours
16	G. C.	41	Mr. Jones	„	Gonorrhœa 10 years; symptoms 10 years	„	Retention incomplete; catheter impracticable
17	R. F.	38	Mr. Makins	Hypo-spadias stricture at meatus and fistula	Congenital	Meatus	Retention; extravasation into penis; phimosis

Difficulties or complication.	Perineal catheter.	Urethral catheter.	Secondary operation.	Time under treatment.	Notes.
Slight extravasation of urine around wound	Yes	7th day No. 9; No. 10 on discharge	—	43 days. C.	An occasional drop of urine by perineum when he left.
—	Yes	7th day; 16th No. 9	—	31 days. C.	—
—	Yes	18th day No. 10	—	97 days. R.	General condition bad, but makes water much more easily, and No. 10 can be passed, while No. 2 was the largest before admission.
Occasional rigors; epididymitis	Yes, No. 11	13th day, into stricture only	23rd day external urethrotomy; No. 13 tied in	85 days. C.	—
—	Yes, No. 6, 1 day	7th day No. 5; 25th No. 10	—	36 days. C.	Delirium 2 days after operation.
—	Yes, No. 11	31st day No. 2; 62nd day No. 9	49th day internal urethrotomy; No. 8 tied in	106 days. C.	Hard drinker. Very slight escape from wound during defæcation; none ordinarily when he left.
—	No. 7	21st day No. 5 easy	—	36 days. C.	—
Rigors; perineal abscess 30th day; erysipelas 36th—52nd day	Yes, 10 days	—	10th day external urethrotomy, No. 5 tied in; 21st day No. 10	115 days. C.	During attack of erysipelas the stricture relapsed, but 6 weeks before discharge a catgut guide was introduced, and afterwards dilatation was rapidly effected.
Phimosis; circumcision	Yes, No. 10 9 days	18th day	Catheter passed from wound and cut through glans 18th day	80 days. C.	Patient married, with 4 children. 12 months before admission inflammation of glans and prepuce caused obstruction of meatus, and 3 fistulæ formed, although patient was circumcised no instrument could be got through these at time of operation.

No.	Name.	Age.	Surgeon.	Nature of case.	Cause and duration.	Site of obstruction.	Indications for operation.
18	H. C.	49	Mr. Croft	Stricture ; perineal abscess	4 or 5 attacks of gonorrhœa ; 20 years	Bulbous and membranous urethra	Retention ; extravasation into penis ; phimosis
19	G. D.	49	Sir W. Mac Cormac	Stricture	Gonorrhœa 20 years ; 15—16 years	„	Retention incomplete ; No. 1 only ; high tempera- ture ; rigors
20	W. W.	53	Mr. Makins	Stricture ; perineal fistulæ numerous	Trauma 12 years	„	Retention
21	F. C.	52	Mr. Jones	Stricture ; perineal fistulæ	Gonorrhœa 27 years ; during year before admis- sion numerous abscesses	Penile urethra (4 inches down)	Fistulæ ; cystitis ; impracticability of catheter
22	G. J. H.	51	Mr. Croft	Stricture	—	Meatus and at junction of bulbous and membranous urethra	Retention ; extravasation of blood ? into scrotum after catheter No. 4
23	A. J.	25	Mr. Jones	Stricture	Gonorrhœa 10 years ; trau- matic 4 years	6 inches from meatus	Retention ; sick- ness ; rigors ; catheter im- pacted
24	W. H.	36	Mr. Makins	„	Trauma 21 years	Membranous urethra	Retention 36 hours
25	J. F.	50	„	„	Trauma 37 years	Meatus and membranous urethra	Incomplete re- tention ; rigors ; high tempera- ture
26	J. D.	45	Mr. Jones	„	1 year	„	Retention 1 day

Difficulties or complication.	Perineal catheter.	Urethral catheter.	Secondary operation.	Time under treatment.	Notes.
—	None	35th day catgut guide; 50th day No. 12	—	52 days. C.	—
—	No. 12, 1 day	26th to 29th day unsuccessful; No. 12 on discharge	20th day external urethrotomy; No. 12 cut through	66 days. C.	—
Non-escape of urine; suprapubic aspiration	None	None	—	37 days. F.	Perineal section 10 years previously by Mr. T. Smith. Numerous attempts at catheter entirely failed. Left passing his urine by perineum.
—	Yes, 11 days	—	—	21 days. C.	Attempt at catheterisation, persevered in for 1 month, failed.
—	Yes	16th day No. 6 to 11	Meatus nicked 16th day	63 days. C.	Retention 4 years previously.
—	Yes	22nd day No. 8	—	30 days. C.	Attack of retention 2½ years previously. Under treatment 19 days previously, but no catheter could be passed.
—	No. 18	27th day No. 6, before urethrotomy nil.	External urethrotomy 14th day, hæmorrhage from perineum	31 days. C.	—
—	No. 12 3 days	24th day No. 9	—	56 days. C.	No. 1 only could be passed; under treatment 22 days before operation.
Some hæmorrhage necessitated plugging for 6 days; rigors later	No. 12	21st day No. 3	—	48 days. C.	Rigors during subsequent catheterism.

No.	Name.	Age.	Surgeon.	Nature of case.	Cause and duration.	Site of obstruction.	Indications for operation.
27	W. M.	63	Mr. Clutton	Stricture; enlarged prostate; extravasation	20 years	2½ and 6½ inches from meatus	Retention; extravasation
28	H. J. H.	33	Mr. Makins	Stricture	—	Junction of bulbous and membranous urethra	Incomplete retention
29	J. T.	68	Mr. Clutton	Stricture; enlarged prostate	Gonorrhœa 30 years; 20 years	„	Incomplete retention; hæmaturia; acute cystitis
30	W. H.	39	Mr. Jones	Stricture	Gonorrhœa 20 years; 5 years	2 strictures, 1 at commencement, 1 in course of membranous urethra	Impermeable stricture; extremely fetid urine
31	J. H.	49	Mr. Croft	False passage; hæmatoma of scrotum	Auto-catheterism	—	Retention; false passage
32	F. W. B.	39	Mr. Clutton	Stricture; uræmia	Gonorrhœa 30 years	Junction of bulbous and membranous urethra	Retention; dribbling; catheter impracticable
33	H. P.	54	„	Stricture; extravasation; albuminuria	—	—	Retention; extravasation

Difficulties or complication.	Perineal catheter.	Urethral catheter.	Secondary operation.	Time under treatment.	Notes.
—	No. 10, 5 days	7th day No. 8	—	64 days. C.	Perineal section for extravasation done by Mr. Makins 1 year previously.
1 rigor	No. 12, 3 days	15th day catgut, 23rd No. 5	—	33 days. C.	
Hæmaturia	No. 12, 9 days	9th day No. 9	—	27 days. C.	Urine still very offensive.
Urethral abscess root of penis	No. 12, 8 days	8th day No. 1, 35th day No. 12	Internal urethrotomy 30th day	60 days. C.	
Incision of hæmatoma	No. 12	8th day No. 8, tied in on 12th day	—	152 days. C.	Man fell astride plank and got a large hæmatoma of scrotum; he had to have his water drawn off, and on 6th day he made a false passage, which rendered catheterism impracticable.
Slight orchitis	No. 11	10th day No. 7	—	25 days. C.	Uræmic fits; unconscious when admitted.
Rigors	—	—	—	95 days. C.	



Fatal

No.	Name.	Age.	Surgeon.	Nature of case.	Cause and duration.	Site of obstruction.	Indications for operation.	Difficulties or complication.	Perineal catheter.
34	J. A.	34	Mr. Jones	Stricture; perineal fistula	Gonorrhœa 10—13 years ago; symptoms 10 years	—	Retention	Persistent vomiting	—
35	F. T. T.	39	Sir W. Mac Cormac	Stricture; extravasation of urine; perineal fistula	Symptoms 15 years; 5 years severe; no stream, dribbling only	Membranous urethra	Retention; extravasation; passage of catheter impracticable	Incisions into scrotum; uræmia	—
36	T. N.	73	Mr. Croft	Stricture; urethral discharge	Symptoms 20 years	Meatus, bulbous and membranous portions	Incomplete retention, dribbling; cystitis; catheter impracticable	—	—
37	J. K.	68	Mr. Jones	Stricture	Symptoms 10 years	Membranous urethra	Retention, dribbling; catheter impracticable	Rigors; uræmia	—
38	F. P.	39	Mr. Croft	„	Gonorrhœa 23 years ago; symptoms 15 years; dribbling 9 months	„	Dribbling; catheter impracticable	„	—
39	W. C.	50	Mr. Pitts	„	Gonorrhœa 28 years; symptoms 20 years	„	Retention; catheter impracticable	—	—
40	E. S.	40	Mr. Makins	Stricture; false passage; extravasation	16 years	4 inches, course of penile urethra	Retention; extravasation of urine	Intra-pelvic extravasation	No. 12

Cases.

Urethral catheter.	Secondary operation.	Time under treatment.	Cause of death.	Notes.
—	—	16 days	Exhaustion; renal disease	Punctured over pubes 12 hours before operation; an abscess formed in track of puncture, which was opened two days before death.
—	—	4 days	Uræmia	P.M.—Stricture “impermeable,” pinhole orifice. Bladder: walls 1—1½ inches thick, mucous membrane injected and inflamed. Ureters inflamed, but not thickened or dilated. Kidneys: left—pelvis dilated and inflamed, disseminated suppurative foci near surface; right—small, large cyst at lower part full of clear fluid. Pelvis and calyces dilated and inflamed.
—	—	20 days	Bronchitis, pulmonary congestion, exhaustion	P.M.—Bronchitis, congestion of bases, double. Annular stricture, ½ inch long, impermeable in bulbous part. Bladder dilated, walls fasciculated, mucous membrane congested. Prostate much enlarged; large abscess in each lateral lobe. Kidneys: capsule adherent, surface rough and irregular. Cortex thin. No pyelitis.
No. 8 23rd day	—	29 days	Uræmia	P.M.—Old pleural adhesions. Pericardial cavity obliterated. Heart small, valves normal. Lungs: general œdema, consolidation of bases. Urethra: bridle at junction of membranous and spongy parts; two false passages to left of urethra. Prostate normal. Bladder dilated, slightly thickened; mucous membrane congested and swollen. Kidneys small, adherent capsule, cortex swollen and congested; thin white streaks along medullary rays.
—	—	48 days	„	P.M.—Old pleural adhesions. Lungs congested at bases. Right heart dilated. Urethra: stricture, ¼ inch long, almost obliterating passage. Prostate normal. Bladder hypertrophied; mucous membrane irregular, congested; submucous extravasation of blood. Ureters dilated. Kidneys: ureters and pelvis dilated. Medulla diminished from pressure. Cortex swollen, opaque; numerous suppurating foci.
—	External urethrotomy 15th day	15 days	—	No P.M. Died suddenly without obvious cause. Had been treated by supra-pubic puncture in Charing Cross Hospital 6 years previously.
—	Incision in hypogastric region 2nd day	5 days	Pyæmia	At time of operation incision made in front, but no urine escaped. 1½ pints came by perineal puncture. Free incision made on 2nd day, but patient died on 5th day from pyæmia. See notes, p. 111.

No.	Name.	Age.	Surgeon.	Nature of case.	Cause and duration.	Site of obstruction.	Indications for operation.	Difficulties or complication.	Perineal catheter.
41	N. M.	70	Mr. Makins	Stricture; enlarged prostate; extravasation	Gonorrhœa; symptoms 13 years	4 inches, course of penile urethra	Retention 10 hours; infiltration of penis and scrotum	Circumcision; pneumonia	No. 12
42	H. J.	42	Mr. Pitts	Stricture; extravasation	Symptoms 4 years	„	Incomplete retention 4 days; swelling of penis; extravasation	Hæmaturia 4 days after operation; pyæmia 20th day	No. 12, 13 days
43	J. L.	67	Mr. Battle	Stricture; perineal abscess; albuminuria	—	4 inches, course of penile urethra	Incomplete retention 7 weeks; dribbling; perineal abscess	Incision of abscess	None
44	H. K.	34	Mr. Anderson	Stricture	Gonorrhœa 20 years ago; symptoms 4 years	„	Retention	Urethra not to be found; puncture per rectum; pyæmia	None
45	J. L.	40	Mr. Jones	„	Gonorrhœa 18 years; signs of stricture 14 years; 1 previous attack of retention	—	„	Hæmorrhage at time of operation on 2nd day	No. 12
46	J. W.	43	Mr. Clutton	„	Signs 11—12 years	—	Dribbling 14 days; retention complete 24 hours	Some hæmorrhage; 3rd day again	No. 12

Urethral catheter.	Secondary operation.	Time under treatment.	Cause of death.	Notes.
14th day No. 5 silver; 29th No. 9	—	45 days	Acute pneumonia	P.M.—Left pleura small, effusion of fluid; right, dense old adhesions. Left lung congested; right, red hepatisation, $\frac{2}{3}$. Liver congested. Gall-bladder dilated; several gall-stones. Spleen large, soft. Urethra: stricture in membranous part. Prostate large; abscess right lobe, communicating with urethra. Bladder hypertrophied; mucous membrane roughened in places. Kidneys: both large, mottled on section; no abscesses, no pyelitis; pelves congested. Capsule stripped readily.
—	—	42 days	Pyæmia	P.M.—Right pleura general adhesions. Left knee and metacarpal phalangeal joint 1st finger suppurating. Abscesses in forearm and right calf. Urethra: stricture, $\frac{3}{8}$ in. long, in membranous part, also a bridle. Prostate: enlargement of middle lobe, abscess in left lobe. Bladder: moderately hypertrophied and dilated. Kidneys large; capsule adherent in parts; cortex swollen, opaque; no suppurative foci; pelvis dilated. Heart flabby; right side dilated; endocardium blood-stained; valves normal. Lungs œdematous, no abscess. Liver and spleen soft.
—	—	32 days	Renal disease; exhaustion	No P.M.
—	—	5 days	Pyæmia	No P.M.
—	—	4 days	Exhaustion	No P.M.
—	In- ternal ureth- rotomy Rigors	13 days, 6 days after 2nd opera- tion	Renal disease; uræmia	P.M.—Chest and abdomen normal. Urethra: stricture in membranous part. Bladder small; mucous membrane acutely inflamed; abscess on upper surface. Kidneys large; pelves and ureters dilated, red, and congested; numerous suppurating foci on surface and on section.

CASES
OF
PERFORATION OF THE VERMIFORM
APPENDIX.

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PERFORATION of the vermiform appendix is a disease rare in its occurrence, obscure in its symptoms, sudden in its onset, rapid in its course, attended with much suffering, and terribly fatal. From its rarity and obscurity it is not always that the physician recognises it, or is able to differentiate it from other diseases. It is a disease for the cure or even the alleviation of which, from the nature of the case, medicine can do little or nothing. But the strides which abdominal surgery has recently made have at last enabled it successfully to deal with perforation of intestines. Of all perforations, that of the vermiform appendix seems the most suitable for operative measures. The surgeon can cut directly down on the cæcum. The appendix is easily found and easily removed, while the remainder of the intestinal canal is perfectly sound. If it is found that there is peritonitis free drainage can be established. At a meeting of the Clinical Society, December 11th, 1885, Dr. Barlow and Mr. Godlee reported a case of perforation of the vermiform appendix operated on on the fourth day from the onset of symptoms. The diagnosis lay between internal

strangulation and perforation. The abdominal cavity was laid freely open, washed out with a solution of perchloride of mercury and freely drained. The patient made a good recovery. Such a result is extremely encouraging and gives hope for like success from early operation in the future.

But if the surgeon is to cure he must be called in early before the patient is poisoned by the putrid products of a septic peritonitis. To give the patient the best chance the physician should be able to give an accurate diagnosis to guide the surgeon. If the physician were able to say, "This is a case of perforation of the vermiform appendix," the surgeon would undoubtedly prefer making his incision in the right iliac region to making it in the middle line, as he is bound to do if the operation is exploratory.

These cases are most frequently seen first by the general practitioner, and the fate of the patient may depend on his early recognition of the gravity and urgency of the disease. The publication of even a few cases such as the following has its justification, if it contributes in the least degree to make the disease better known.

The cases I have to report are seven in number, and all but one were admitted to this hospital during the last year. Six cases in one year is a quite unusually large number. Dr. Bristowe, who had three of them under his care, informs me that he does not remember to have had any such case previously. During the last ten years only two other cases are recorded in the Hospital Registers. Dr. Fenwick ('Lancet,' December 6th, 1884) mentions that at the London Hospital during forty years only nineteen cases of disease of vermiform appendix are to be found in the post-mortem records. It seems fair to conclude that the disease is a rare one.

Of the seven cases four were males and three females. The youngest was eight years old, the oldest thirty-two, the average age was twenty-two.

All had a history of excellent health before their fatal illness. As regards the exciting cause, in five none could be found, in one there was the taking some possibly unwholesome food, in another over-exertion just before the onset. Most likely these latter had no relation to the illness.

The onset in all was characterised by sudden pain in the

abdomen. In all but one the pain was extremely severe and most intense at first; in the exception not very severe at first, it gradually increased in intensity for three days. It was referred to the epigastrium in one case, and to the right inguinal region in another; in the others it was not localised. The pain persisted less acutely subsequently.

Vomiting came on in five of the cases within a few hours, in one not for three days after the onset, and in the other its occurrence is not mentioned. Vomiting having once occurred persisted in all the cases at least for a time.

In two of the cases there was no action of the bowels during the whole illness, the bowels being confined for seven days in one and for twelve days in the other. In one case there was diarrhœa throughout. In the others there was a great tendency to constipation, but the bowels were moved once or twice during the illness.

In four of the cases the abdomen was much distended and resonant all over, in the others there was little if any distension. In five it was generally tender.

In two of the cases there were never any special signs pointing to the right iliac region, but in the other five there were. Tenderness and resistance in this region were noted in all these five. In none was there at any time any definite tumour found on examination, but one of the patients stated that there had been a lump which had disappeared. In one of the two exceptional cases there was some tenderness and impairment of resonance in the left iliac region.

The duration of the illness varied from six to seventeen days; only in one, however, was it more than ten days, and the average was nine days. The cause of death in all seemed to be asthenia and collapse.

From the post-mortem examinations it was found that the perforation of the appendix was about the middle in four, near or at the tip in the other three cases. In five of the cases fæcal concretions were found in the appendix, but in only one case was a concretion found in the peritoneal cavity although carefully looked for in all. The concretions varied in size from a pea to a hazel nut. They were all formed of fæcal matter, soft and earthy-like. No foreign body was found in any case in the concretion. The sudden onset of

pain in these cases suggests the sudden introduction of some irritant into the abdominal cavity. It is not necessary, however, to suppose that a concretion is set free into the cavity in each case. The injection of the liquid contents of the appendix into the peritoneum would be quite sufficient to account for the result.

The peritonitis in all the cases was acute and purulent. It was most intense round the appendix. In several of the cases the opening was covered over with lymph and was not apparent until this had been stripped off.

As regards the intestines nothing abnormal was noted in five cases. There was a crupous enteritis affecting the whole of the small intestine in one, and there was a limited patch of enteritis in another.

The treatment adopted was much the same in all the cases. Opium or morphia was given to control the pain and to keep the intestines at rest. Leeches and stupes were ordered in some cases. In only one case was the patient operated on, and in that, as the result showed, the operation was done too late. Unfortunately most of the cases came to the hospital too late for hope from operation. Two were in a state of collapse from which they did not rally. Only two of the cases came before the fifth day from the onset of symptoms.

With so much introduction I shall now narrate the cases, and with a few observations on their diagnosis bring this paper to a close.

I have to thank Dr. Bristowe, Dr. Ord, and Mr. Sydney Jones for allowing me to make use of the cases under their care.

CASE 1.—F. W—, æt. 8, a healthy-looking well-nourished boy, was admitted on June 5th, 1885, under Dr. Ord, suffering from symptoms of intestinal obstruction.

He had been very healthy up to the onset of the illness. On the evening of June 1st he had been jumping just before going to bed. About a quarter of an hour after he had gone to bed he felt a pain in the right inguinal region which prevented him from sleeping, and during the night he vomited. On June 2nd he took some senna, which acted four or five times, and he had some other medicine from a doctor.

He was restless on the evening of June 3rd and vomited about a teacupful. He also vomited on June 4th. On the morning of admission his mother gave him two penny doses of castor oil.

When admitted his bowels had not been opened for three days. His face was pallid and distressed looking. He lay on his back with his legs drawn up.

The abdomen was greatly distended, its surface was shiny, and the superficial veins were prominent. It was very resonant all over, except in the right loin, where it was markedly deficient in resonance and tender to percussion. No tumour was to be felt in the abdomen. No ascites.

The rectum was moderately full of fæces. The tongue was moist and furred. The pulse was 120, not wiry. Temperature 100.4° . Nothing abnormal in the other organs.

He was ordered to have $\frac{1}{2}$ gr. of Ext. Opii in pill every four hours, turpentine stupes to the abdomen, and ice and a very little milk by the mouth.

He was very restless during the night of June 5th. He vomited immediately after the first pill and kept continually shouting out till 2.30, when the second pill was given, after which he was quiet and slept the rest of the night.

Next morning he seemed better. The pain was less and the restlessness had abated. He had a better pulse and looked less distressed. The abdomen was softer.

In the evening the temperature rose to 103° and the pulse was 128.

On the morning of June 7th the bowels were opened twice. The motions were solid and somewhat yellowish, free from blood or inflammatory exudation. The temperature was 102.2° ; the pulse 132. He complained of no pain.

In the evening he became restless and fell into a condition of collapse, in which he died about 1 a.m.

Post-mortem examination (by Dr. Hadden).—On opening the abdomen a quantity, perhaps two pints, of pus escaped. There was general peritonitis, but the inflammation was much more acute on the right side in the neighbourhood of the cæcum, ascending colon, and right lobe of liver. In the right iliac region the vermiform appendix was seen lying altogether in the peritoneal cavity. About its mid-length there was an

irregular rent. No foreign body was found in the parts about. Near the junction with the cæcum a small rather firm mass could be felt. On opening the appendix the mass was found to be a brown laminated concretion containing a few gritty particles and about the size and shape of a cherry stone. It was soft and cut easily. The hole in the appendix was due to the perforation of an ulcer. It was surrounded by adherent white material. The concretion was lying near the ulcer but not upon it. There were several small superficial ulcers scattered through the appendix and there was a quantity of yellow liquid fæces in it.

There was a croupous enteritis of the small intestine from about three feet below the pylorus to the ileo-cæcal valve. The mucous membrane was covered with a yellowish-white, easily separable membrane, and underneath the covering was congested and superficially ulcerated in places. Some caseous mesenteric glands were found and there were evidences of recent inflammation in the non-caseous. Other organs were healthy.

CASE 2.—W. F. W—, æt. 17, a well-nourished boy, was admitted on September 20th, 1885, under Dr. Ord, for pain and swelling of abdomen and dysuria; ill five days. He had been in very good health up to onset of illness. On the evening of September 15th he was seized with pain in abdomen of a doubling-up nature. He had also slight headache. Next day he had violent sickness, vomiting everything taken. His abdomen became swollen and tender and he could not bear a slight weight on it. The pain was eased by warm applications to the abdomen, by drawing up of the legs, and by lying on the back. He was feverish and thirsty and his breathing was frequent and shallow. He had hiccough, slept badly, and was restless at night. On the 17th he began to have pain on micturition and passed very little water. On the 20th he was catheterised, and the doctor attending him advised him to seek admission.

When seen on admission he looked anxious and lay on his back with his legs stretched out. His pulse was 156, small and hard. The temperature was 99°, the respirations 30, and shallow. The tongue was red coated and fissured.

The abdomen was extremely tender, painful, and distended, and its walls were motionless during respiration. There were the signs of free fluid in the abdominal cavity. The circumference at the umbilicus was twenty-eight inches. Nothing otherwise abnormal was noted. He was ordered a grain of opium every four hours, and to have turpentine stupes to the abdomen.

On September 22nd it was noted that there was more pain locally and much sickness. The pulse was 135, and feeble. The bowels opened five times. In the evening the pain and tenderness was greater, and the sickness continued severe. The pulse was 132, small, and wiry. He became collapsed, and died at 4 a.m. The temperature was between 98.2° and 99.8° until the evening he died, when it rose to 101° .

Post-mortem examination was made by the present writer. Body was well nourished. On opening the peritoneal cavity there was found to be considerable distension of intestines, which were slightly adherent to one another by a plastic lymph. There was a purulent effusion in the most dependent parts. A slight escape of gas came from the neighbourhood of the cæcum. The acute inflammation pervaded the whole cavity from the pelvis to the diaphragm.

The vermiform appendix presented a rent about half an inch long near its tip, and was covered with inflammatory lymph. A concretion about the size of a small bean, consisting of hardish fæces, was found in the upper part of the appendix. The mucous membrane of the appendix was congested. No foreign body or concretion found in the peritoneal cavity.

The intestines contained a considerable quantity of fæces, resembling pea-soup in colour and consistence, but appeared otherwise normal. The other organs were healthy.

CASE 3.—E. G—; æt. 29, single, servant, a well-developed, well-nourished woman, was admitted on November 30th, 1885, under Dr. Bristowe.

She had had no previous serious illness, and was perfectly well up to the onset of the present attack. On November 25th she was attacked with a piercing pain in the epigastric region. On the following three days she was constantly sick, and the pain persisted. On the 29th and 30th she was sick about

three times. During this time she was being treated with opium, and the bowels were not opened after November 24th. The vomited fluid was of a greenish yellow colour.

When admitted she was extremely ill and pallid. Her pulse was 132 and very feeble; the temperature was normal; respirations 32. The abdomen was much distended, resonant, and tender all over. The tenderness was most marked in right iliac region, and here there was most resistance on palpation. No tumour could be made out. The abdominal veins were enlarged. The urine was normal.

Nothing abnormal found in the various organs. Patient was ordered Ext. Opii gr. j, 4tis horis.

Next morning, December 1st, the pulse had increased to 150, and was extremely feeble; the extremities were cold. The patient was quite conscious and sensible. Hiccough came on, followed by vomiting. The patient died collapsed about 2 p.m.

The post-mortem examination was made by Dr. Sharkey. A very acute purulent peritonitis was found, most intense in region of right iliac fossa. The vermiform appendix was seen lying adherent to the cæcum and ascending colon, and also adherent to the peritoneum in the lumbar region. It was purple and thickened, and lymph covered it in places. On gently breaking down the recent adhesions between it and the peritoneum a perforation was seen, and in the peritoneum was found a calculus of dark brown colour and oval shape. On section it cut soft and gritty, and was striated concentrically. Another similar and somewhat larger one was found a little beyond the opening of appendix into cæcum. Some very hard scybala were found in the cæcum, but the rest of intestines were healthy. Lungs much congested.

CASE 4.—E. L. B—, a well-developed, fairly well-nourished man, æt. 25, was admitted under the care of Mr. Sydney Jones on April 20th, 1886, suffering from symptoms of intestinal obstruction of seven days' standing.

Until the onset of this illness he had had excellent health. He had not suffered from constipation, but for two days before the attack his bowels had not been opened. On the morning of the 13th of April he was taken suddenly ill with violent

abdominal pain. In the evening vomiting commenced, and recurred at shortening intervals until admission. The abdominal pain persisted, and the bowels remained unopened all the week.

On the evening of admission Mr. Jones asked me to see the patient with him. He was lying on his back with the legs drawn up, expression anxious, eyes slightly sunken, mouth dry, tongue furred, pulse rapid and wiry. He complained of constipation, abdominal pain, and vomiting.

The abdomen was slightly distended. There was some tenderness in the left iliac region with some fulness and slight impairment of resonance. The rectum was quite empty. The temperature was 99.4° . The symptoms therefore resembled very closely those of obstruction of the bowel, but there was nothing to reveal the nature or the situation of the obstruction.

It was determined for the time to treat the patient medically, and he was ordered half a grain of extract of opium, with a quarter of a grain of extract of belladonna, to be taken every four hours. An enema was administered by means of the long tube, but was returned unaltered almost immediately. Nutritive enemata were to be given per rectum.

Next day the patient was a little better. He had had no vomiting. He had retained the nutritive enemata. There was no change in the condition of the abdomen. A large enema was again given, with no result.

The case went on with no marked change in the patient, except that he was getting weaker. The patient wandered somewhat, but was never noisy, and could easily be recalled to himself. His temperature varied between 98° and 101.8° .

On April 23rd it was determined as a last resource to operate. On commencing the anæsthetic the pulse became so bad that the idea of operating had to be given up. A few hours later the patient died.

I made a partial post-mortem examination. The abdomen only was allowed to be examined. The great omentum covered the anterior surface, and was separated from the underlying intestines with some difficulty on account of adhesions. The intestines exposed after its removal were injected, and here and there were adherent to one another by recent lymph. There was general peritonitis, but it was more acute in some

places than others. The liver was covered with a thickish layer of lymph. In the neighbourhood of the cæcum and in the pelvis the intestines were covered with thick lymph, and in the most dependent parts there was a considerable amount of purulent serum. The ileum was much injected about six inches from the ileo-cæcal valve.

The vermiform appendix was distended by a mass about the size of a hazel nut. There was a small perforation about two lines in diameter on the proximal side of the concretion. The mucous membrane of the appendix appeared to be acutely inflamed, and its serous surface was covered with thick lymph. The concretion cut soft on section, and appeared to consist entirely of earthy fæcal matter.

The large intestine was moderately distended, the small not fuller than usual. The contents of the small intestine were only yellow liquid fæces. The cæcum contained numerous scybala. There was a patch of very acute enteritis affecting some four inches of the ileum about six inches from the ileo-cæcal valve.

CASE 5.—A. M—, æt. 22, female, single, corset-maker, was admitted under the care of Dr. Bristowe on July 5th, 1886. Until her present attack she had enjoyed good health. She had been in a private hospital thirteen months before for “displacement of the uterus,” and had worn a pessary ever since.

On July 2nd patient ate some potted or tinned salmon for supper. Next morning she awoke with abdominal pain; however she went to business as usual. When there she was very sick, and had to return home. The vomiting recurred at intervals during the day. In the evening she saw her doctor, who removed the pessary she had been wearing. No relief from her symptoms followed, and she continued to suffer from abdominal pain and attacks of sickness till admitted to the hospital.

She was a fair, delicate-looking young woman, and on admission complained of severe abdominal pain and sickness. She looked anxious. Her eyes were slightly sunken and surrounded by dark rings. She lay on her back with her knees drawn up, and said it hurt her to extend them.

The abdomen was very tender all over, but was not distended. No movement of the walls took place during respiration. No dulness or other sign of tumour or ascites was present.

Her skin was hot and dry, and the temperature was 102.4° . The pulse was 112 and rather feeble. The tongue was coated with a thick dirty-white fur. The vomit was green and watery. The bowels had not been opened since the commencement of the attack. The catamenia were regular and a period had just commenced. There was no vaginal discharge. The urine was normal.

Dr. Bristowe saw her on the 6th. The sickness and abdominal pain had continued, and there was now some resistance in the right iliac fossa. Dr. Bristowe's opinion was that the case was one of perityphlitis.

She was ordered to have twelve leeches over the abdomen, to be followed by a poultice, and to take eight minims of the liquid extract of opium every four hours.

Dr. Gervis, at Dr. Bristowe's request, saw the patient the same afternoon, and made a vaginal examination. He reported that the uterus was fixed by some inflammatory thickening, and looked upon the case as one of serous perimetritis.

On July 7th she felt a little better. There had been no vomiting since 3 a.m., but she was having only occasional teaspoonfuls of iced milk. The abdomen was less tender. The pulse, however, was more rapid, 128. The tongue was more thickly coated. The bowels acted slightly.

On July 9th there was more distinct swelling in the right iliac fossa. In this situation there was dulness, resistance, and tenderness to pressure, and some œdema of the abdominal wall. Sickness still continued. The tongue much furred; the pulse 108. No further action of the bowels.

The temperature during these five days had varied little. On the evening of the day of admission it was highest 102.4° , and subsequently had remained between 99.8° and 100.8° .

The patient had certainly been getting weaker, and losing ground all the time. The question of operation had been discussed with the surgeons, but nothing had been done.

Mr. Sydney Jones again saw the patient with Dr. Bristowe, and it was decided to operate. Mr. Battle performed the

operation. The patient was put under ether. An incision about three inches in length was made internal to and parallel with Poupart's ligament, beginning above the anterior superior spine. The superficial structures having been divided, the trocar and cannula of an aspirating apparatus was inserted, and some ounces of very offensive pus drawn off. A free incision was then made, and a considerable quantity of fetid pus was evacuated, and the cavity was washed out with antiseptics. On digital examination the cavity was found to be bounded by matted intestines. The wound was dressed antiseptically.

The patient did not recover from the shock of the operation, and gradually sank, dying about nine hours after.

Post-mortem (by Dr. Hadden).—Body rather thin. On opening the abdomen there was found to be general recent peritonitis. There was a quantity (unmeasured) of pus in the dependent parts, especially in the pelvis. The peritonitis was most intense in the right iliac fossa and in the pelvis, where the posterior wall of the bladder and the uterus and its appendages were covered by thick lymph. No concretion was found in the right iliac fossa.

About the mid-length of the appendix a small oval opening existed about a quarter of an inch long. The perforation was covered by lymph on its peritoneal aspect, and was not apparent until the lymph was detached. The mucous membrane corresponding had been ulcerated. The appendix contained three soft earthy-looking concretions, each about the size of a small cherry stone. There was a moderate amount of dark biliary sand in the gall-bladder.

The uterus presented the signs of menstruation, and each ovary contained a recent corpus luteum. The other organs were healthy.

CASE 6.—T. B—, æt. 32, a fireman, was admitted under the care of Dr. Bristowe, late on the evening of July 15th, 1886. He was a well-developed, strong-looking man. He complained of abdominal pain, vomiting, and constipation.

He had been a remarkably healthy man. The only illness he had had was diphtheria about a year before.

On the night of July 9th, while at work, he felt a pain of no

great severity in the abdomen. He got home from work at 6 a.m. on July 10th, and the pain becoming worse, he kept his bed during the greater part of that day. In the evening he took two pills, but no action of the bowels followed. The pain increased in severity till July 13th, when vomiting commenced. On the same evening he passed a motion which he described as being like black lead, and he noticed a lump in the right iliac fossa which afterwards disappeared. From that time till he was admitted he suffered from vomiting whenever he took any nourishment.

When admitted, his extremities were cold and clammy, his pulse was extremely feeble and rapid, 120, and his temperature was 95.8° . He could not speak above a whisper.

There was no distension of the abdomen, but it was tender and he lay on his back with his legs drawn up. There was slight fulness with tenderness and some sense of resistance in the right iliac fossa. The tongue was dry and slightly furred. There had been no action of the bowels for two days. He vomited about a pint of greenish fluid soon after admission.

Dr. Bristowe was immediately acquainted of the urgency of the case. He saw him the same evening, and came to the opinion that the case was most likely one of perforation of the vermiform appendix. Mr. Battle was asked to see the patient and consulted as to the feasibility of an operation. His opinion was that no operation could be done on account of the collapsed condition of the patient. Dr. Bristowe ordered the application of eight leeches over the cæcum, followed by a poultice and the injection of a quarter of a grain of morphia every four hours.

Next day he seemed slightly better. The pain and tenderness were diminished, but the extremities continued cold and clammy, the pulse remained rapid and feeble, and the vomiting persisted. Dr. Bristowe asked Mr. Sydney Jones to see the patient with him. Mr. Jones agreed with Mr. Battle's opinion of the previous evening. The patient was ordered nutrient enemata.

On the 17th he seemed less collapsed. His extremities for the first time were warm and moist. He complained much of thirst. He continued to vomit large quantities of greenish

fluid. The tongue was dry and furred, the pulse 132, regular, slightly stronger than on the previous day. There was marked swelling in the cæcal region running just above and parallel to the outer third of Poupart's ligament. The swelling was not dull to percussion, it was not reddened, fluctuating, or tender.

The patient remained quite conscious and intelligent. He lay in bed with eyes closed, semi-dozing, and only spoke when spoken to. Dr. Bristowe made the following note: "Patient certainly better than he was yesterday, no abdominal tenderness. Hands warm. Pulse fuller and stronger. No action of bowels. Tongue somewhat coated."

On the evening of the 17th the bowels acted three times about an hour and a half after a simple enema had been administered, and the motions contained a little fæcal matter. The abdomen was somewhat distended and the cæcal swelling was more marked. There was less vomiting. The coldness of the extremities had returned. The temperature rose to 100°.

Towards the evening of the 18th the patient became obviously worse. He was very restless, tossing his arms about and trying to get out of bed. The pulse was very feeble. A simple enema at 5 p.m. was followed by a copious offensive evacuation.

In the night he became fiercely delirious, struggled violently, threw himself about in bed, and shouted incessantly. The temperature rose to 104·6°. He died at 5 a.m. on the morning of the 19th.

Post-mortem (by Dr. Hadden).—Body well nourished. There was general peritonitis, slight over the small intestines, advanced in the right iliac fossa and in the pelvis. There was much lymph on the posterior surface of the bladder and anterior surface of rectum and there was a collection of pus in Douglas's pouch.

The tip of the vermiform appendix was white and sloughing. A perforation covered by soft lymph was found at the extremity. No foreign body was found in the iliac fossa, and there was no concretion in the appendix. The appendix contained a little pus, but the mucous membrane, except at the tip, was healthy. Other organs healthy.

CASE 7.—F. B—, æt. 22, a general servant, was admitted

under the care of Dr. Ord on November 27th, 1883, suffering from diarrhœa and abdominal pain and tenderness.

She had had good health until the onset of this illness. On November 16th she had been suddenly attacked with sharp pains in the abdomen, which became very tender and swollen. The administration of castor oil was followed by diarrhœa, which, with the pain and swelling in abdomen, continued up to the time of admission. She also suffered from thirst and dryness of mouth.

On admission she was emaciated, anæmic, and prostrate. There were sordes on the lips and teeth. The tongue was dry and cracked. The abdomen was distended, resonant all over, tender generally, but especially so in the right iliac fossa. The pulse was 120, full and regular. The respirations were 32, regular and shallow. The motions were frequent and watery. The urine contained a small quantity of albumen.

It is noted that there was slight impairment of resonance and feeble breathing over the left lung. There was a systolic murmur at the base of the heart.

Starch and opium enemata were administered daily, and five minims of tincture of opium were given every four hours.

The patient lived six days after admission. During that time she suffered from severe diarrhœa, the bowels being open from six to twelve times a day. Pericardial friction was discovered on November 30th.

The temperature was 102.6° on admission, but was never over 101° subsequently. In the two days before death it was normal.

She died on December 3rd.

Post-mortem examination (by Dr. Sharkey).—Body emaciated and dark in colour. Abdomen distended. On opening abdominal cavity a large quantity (two or three pints) of thick, greenish, rather fetid pus escaped.

The intestines were rather firmly glued together by lymph due to an at any rate not quite recent inflammation. Collections of pus were constantly set free as the adhesions were separated.

There was a considerable collection around the cæcum, but probably not larger than in several other places. Water was put for the purpose of washing in the peritoneal cavity, and on

gently pressing the intestines gas bubbled freely up from an opening close to the cæcum. This proved to be the more or less freely patent orifice of the vermiform appendix, the distal part of which could nowhere be found and the proximal part of which partly opened into the peritoneal cavity and partly was adherent to neighbouring structures.

There was no sign of inflammation or disease in the cæcum, or even in the half to one inch of the vermiform appendix or any other part of the intestinal tract. The bowel was injected here and there and filled with quite fluid fæcal matter. Inflammation very intense round the spleen and left lobe of liver, which was closely adherent to the diaphragm.

The left pleura contained one and a half pints of thick, creamy pus and the lung was collapsed. Right lung and pleura normal.

Heart: The pericardium was deeply injected and presented spots of hæmorrhage; some lymph too was found here and there, but no fluid.

The liver, kidneys, spleen, brain, &c., normal.

The diagnosis in all these cases rested between intestinal obstruction, perforation of the vermiform appendix, and acute peritonitis due to other causes.

In Case 1 it was clear on admission that the patient had peritonitis. The sudden onset with pain in the right iliac region, the tenderness to pressure and deficiency of resonance in the same situation, made it little doubtful what the nature of the case was. Intestinal obstruction was rendered improbable from the fact that the bowels had responded well to purgatives on the second day of the illness, and that the rectum was found full of fæces on admission.

Acute peritonitis was also evidently present in Case 2 on admission. There were no special signs pointing to the right iliac region. The sudden onset of pain, followed rapidly by abdominal distension and vomiting, strongly suggested a cause, such as perforation of intestines. In a healthy lad perforation of any part except the appendix was improbable.

In Cases 3 and 6 the diagnosis presented no difficulty.

Case 4 was an extremely interesting and difficult case. It very closely simulated intestinal obstruction. From beginning to end there was obstinate constipation.

The sudden onset with pain and vomiting did equally well

for obstruction as for perforation. There had been and there was nothing whatever to point to the right iliac region as the starting-point of the illness. The left iliac region was the seat of some tenderness and resistance. The duration of the illness was perhaps too long for a case of obstruction beginning as acutely as this did. My own impression was that it was intestinal obstruction.

In Case 5 the diagnosis was pretty clear by the fourth day of the illness. There were the usual symptoms attending the onset of the attack, with special resistance and tenderness in right iliac fossa. It is interesting to note that such a great the authority on obstetric matters as Dr. Gervis should have looked on the case as belonging to his special province as one of perimetritis. Perimetritis there was, but perimetritis in this case was only part of a disease.

CASE 7.—This case was remarkable for its duration of seventeen days, and for the supervention of pyæmia as shown by the presence of empyema and pericarditis.

From the history and the state on admission, perforation of the vermiform appendix would suggest itself. It began in the usual way, and tenderness in the right iliac fossa is noted on admission. The diagnosis, however, must have been doubtful.

AN OUTLINE OF THE HISTORY
OF
ART IN ITS RELATION TO MEDICAL
SCIENCE.¹

*Being the substance of an Introductory Address delivered
at the Medical and Physical Society of St. Thomas's
Hospital, October, 1885.*

BY WILLIAM ANDERSON.

MEDICINE and Art, historically considered, have had little in common except their remote antiquity; for while Art in the early essays to attain its ideal was making some of its noblest records Medicine lagged behind century after century, wasting the precious years over idle superstitions or in gnawing the dry bones of ancient dogmas; and it was not until the sculptor, the architect, and the painter had done their best that the physician began his advance along the true path of science. It is only upon a scale almost as liberally constituted as the periods of geology that we could venture to compute the lapse of time since our forefathers portrayed the great bear, the mammoth, and the reindeer in the caves of southern France, and made their first endeavours to recognise, avert,

¹ Neither botany nor comparative anatomy has been included amongst the branches of medical science considered in this sketch, each of these subjects having a special history and literature of its own, for the most part distinct from the history and literature of medicine.

and remedy the symptoms of disease, but we must be satisfied to tell by centuries, and upon the fingers of one hand, the term of existence of accurate pictorial or toreutic illustration of even the most rudimentary facts of human anatomy, so far as these facts concerned the study of medicine.

The evidence as to the utilisation of art by the physician during the historical periods anterior to the fourteenth century is almost entirely negative. There is little or nothing to indicate that the ancient teachers were accustomed to assist the exposition of their doctrines by drawings and models, for no such aids to description are alluded to in the writings of Hippocrates or Galen, or in any of the early medical authors (unless the doubtful passages quoted by Hoffmann and Schultze from the '*Historia Animalium*' of Aristotle be accepted as testimony that anatomical figures were employed for the purpose of instruction by the Stagirite), and there is little doubt that had there been anything of the kind worthy of preservation some record of the fact would have been handed down by the almost unbroken succession of ardent disciples who treated as products of divine inspiration every relic and tradition of the great fathers of medicine. The existence, however, of a certain indirect contact between art and medical science may be admitted. Caricatures of surgical deformity are perhaps as old as caricature itself: the wen, the blind eye, the crooked back, appear in drawings of very early date; and the first wart that grew upon the nose of man may well have proved an irresistible temptation to any juvenile draughtsman of the period who felt competent to register his impression of the phenomenon in chalk upon the walls of Memphis or Luxor; but in cases such as these, however strongly the artist may have chosen to accentuate the morbid at the expense of the normal, his design is no more to be received as a tribute to pathology than is the phallic imagery of prehistoric races to be classed with modern illustrations of anatomical or physiological research.

If we carry back the inquiry to the most remote civilisations, as of Egypt, India, Greece, and China, we find the study of medicine held everywhere in great honour, and in some of these countries art, particularly in its toreutic branches, rising to a very

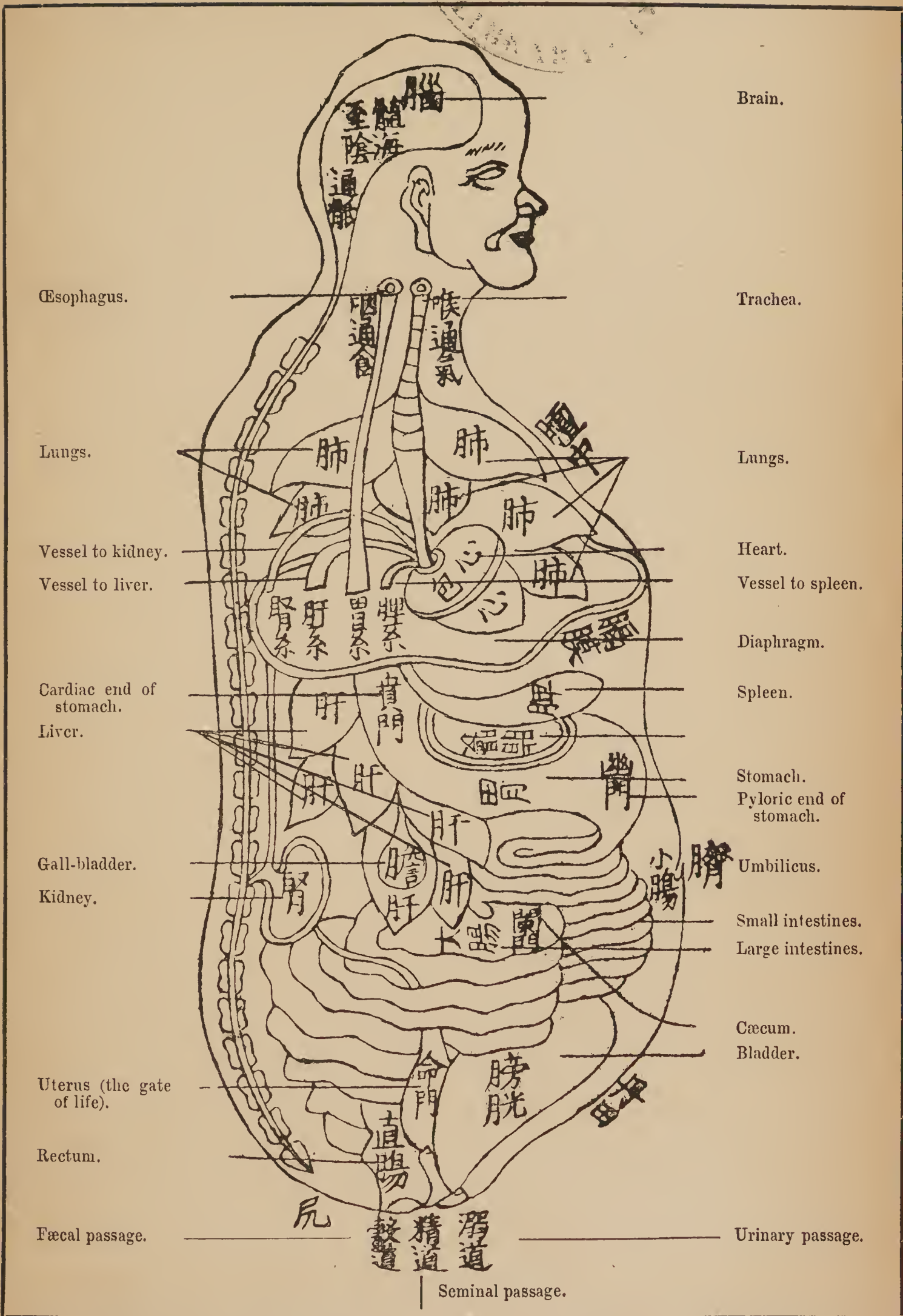
high level, but the artist and the physician never combined their forces. It was perhaps amongst the Egyptians that medicine first took its place as a learned profession, and, according to Eusebius, it even numbered in the ranks of its professors King Athothis, of the First Dynasty, who is said to have been the author of a work upon anatomy. It was, however, a closed guild of sacerdotal specialists, and was regulated as to the details of practice by a stern and rigid control that tended, and perhaps was designed, to stifle all originality and progress. How far its theories may have been supported by dissections of the lower animals we do not know, but the opportunities of direct observation of human anatomy were confined to the degraded and ignorant class of professional embalmers who were in no way affiliated to the doctors. There is at any rate nothing to show that the knowledge of the persons who took under their charge the therapeutics of the various portions of the frame of suffering man was sufficiently developed to be susceptible of exposition in any material degree by model or drawing.

A scientific appreciation of the subject was more nearly approached by the Hindus, who, as the authors of the 'Ayur Vêda' and its commentaries, may be regarded as the founders of the prototype system of medicine. The 'Ayur Vêda,' which is supposed to have been written about 3000 years ago, is lost, but the commentaries upon it, named after their authors, 'Charaka' and 'Susruta,' still remain. Even such a brief outline of these as may be found in Wise's 'History of Medicine' will be sufficient to show how broad was the grasp by which the originators of the work had seized the principles of medical research; and it will be found that the 'Susruta' is not only remarkable for numerous anatomical references, but impresses strongly the truth that the physician could only succeed in mastering his profession by combining practical dissection with the study of books. The way had been well pointed out, but the successors of these intellectual giants mistook the finger-post for the goal and stopped for ever to worship at the opening of the road to knowledge. Art unfortunately had made no appearance either in the 'Susruta' or the 'Charaka,' and it was not likely that the writers of later years, who were content to do no more than

comment upon these commentaries, would have ventured to remedy, even if they had perceived the defect.

The Greeks, like the Egyptians, had a profound veneration both for medicine and for art. Sculpture, in the hands of artists, attained a perfection that has been at once the inspiration and the despair of later Europe; but medicine, in the hands of the priesthood, had in the same period arrived at little more than the worship of *Æsculapius* till a new era began with the advent of *Hippocrates*. It is unnecessary to dwell upon the influence of the "Dogmatic School," extending as it did to the Alexandrian Academy of *Herophilus*, *Erasistratus*, and *Serapion* in the fourth century before the Christian era; to Rome two hundred years later; to Constantinople between the fourth and seventh centuries A.D.; to the Arabian School from the seventh to the twelfth centuries; and to every part of Europe within still more recent years; but whether it worked for good or for evil it appears to have worked without support from picture or model. There is, indeed, a single example of illustrative art that has descended to us, an image showing the abdominal and thoracic organs, disinterred in Rome about 140 years ago from the ruins of the villa of *Antonius Musa*, one of the physicians of the Emperor *Augustus*; but this, despite the fact that dissection of the human body is said to have been practised in the Alexandrian School as early as 323 B.C., merely represented the "Galenical" view of the anatomy of man and negatived the existence of any really scientific form of instruction.

Passing to the Chinese, who were always distinguished by the courage with which they carried out their fictions in detail, we have evidence that both diagrams and models were employed from a very remote period, perhaps over two thousand years ago, in teaching an almost purely imaginative anatomy. It is to a physician named *Pien Ts'iao*, who is said to have flourished about the sixth century before Christ, and to have dissected the human body, that the "discovery" of non-existent channels of circulation for the blood and vital spirits, and the invention of the wildly elaborate theory of the pulses are attributed; and it is believed that the anatomical diagrams that may yet be seen in Chinese and Japanese books, and some of which demonstrate in the midst of absurd errors a certain acquaint-



tance with the viscera of the lower animals, date from this time. It is perhaps less marvellous that a physiology, a pathology, and a complex scheme of therapeutics should have been founded upon so audacious a fraud as Chinese anatomy, than that the gigantic system of quackery should even in our own day number far more believers than all the science of the West. Fortunately for the reputation of true Chinese art, which at one time was far in advance of that of contemporary Europe, it can scarcely be convicted of association with medicine, for the diagrams in question were the work of unskilled hands and as clumsy and untruthful as the pseudo-medical lore to which they form a fitting appendage.

Chinese medicine was adopted by Japan, together with the art and letters of the middle kingdom, but the younger nation has added much of its own to the borrowed fund, and has been the first to perceive the error of its ways. It is remarkable that the earliest known drawings relating to pathology were the work of a famous Japanese painter of the twelfth century, who has given us a series of illustrations of disease, nearly all of which were probably drawn from life. In this curious collection we may trace representations of carbuncle, enlargement of the patellar bursa, paraplegia, gangrene, acne rosacea, intestinal fistula, gastric fistula (a man whose mouth is obliterated is shown introducing food through an aperture in the region of the stomach), and other conditions, while many drawings that are less open to identification still appear to be conscientious attempts to hand down the appearances presented to the artist. The roll, a copy of which is preserved in the British Museum, is worthy of a closer study than can be devoted to it here.

As might be conjectured, the establishment of medicine upon a scientific basis in Europe, after the long intellectual paralysis induced by a blind reverence for antiquity, was a tedious and oscillating process. Until the beginning of the fourteenth century, when the restrictions against dissection were abolished, the writings of Hippocrates, of Galen, of Aretæus, of Paulus Egineta, and a few other venerated but unsound authorities, constituted the foundation of the theory and practice of the physician. Anatomy was traditional

and in great part fictitious; physiology little more than a farrago of crude conceits and baseless dogma; medicine a dismal combination of empiricism, superstition, and filthy charlatanism, tinged with a slight infusion of the black art, but happily relieved by a few sparkles of genuine observation; and surgery, as we now understand the term, existed only in a rudimentary form and in a few narrow specialties. That some of the older writers dissected the human frame a little and discoursed upon the importance of dissection a great deal; that others examined the arrangement of the internal organs of the lower animals in a moderately scientific spirit, is beyond question, but the difficulties in the way of a large appreciation of the subject were for many a weary age enormous—and triumphant. An absurd physiology based upon an inaccurate anatomy, and a medicine and surgery resting partly upon the one partly upon the other, could have no more stability than a pyramid standing upon its apex. Art could find no foothold here.

But the artists were far more profound observers than the physicians. The sculptors of ancient Greece, more than five centuries in advance of the Christian era, and some generations before Hippocrates commenced the rescue of medicine from priestcraft, had acquired a knowledge of the superficial forms of anatomy, that appears to have exhausted the possibilities of the subject. Let anyone amongst us who has directed his attention to muscular anatomy and physiology examine the stupendous relics of Greek art in the Elgin Collection at the British Museum, which are attributed to the chisel of Pheidias (died 432 B.C.), or such later works as the "Laocoön" and the "Dying Gladiator," and his pride of modern learning will be humbled when he perceives how much the creators of these masterpieces, separated as they were from our civilisation by upwards of twenty centuries, could teach our learned selves. We, with our shelves of text-books and our daily opportunities of direct investigation, know only the anatomy of the dissected corpse, but they, unaided by the scalpel, saw infinitely more than this, and were able to reproduce in bronze and marble all the subtle contours indicating life and action, with a truth that was more than science—it was inspiration.

Nor was this artistic mastery of anatomical form in sculpture limited to Europe. Apart from the Greek influences left by the Indian conquests of Alexander the Great in the glyptic art of the Punjaub, and the figures known as "The Pilgrim" and "The Scribe," which attest the capacity of Egyptian sculptors before their art had been reduced by meddlesome edicts to a mere question of mensuration, there are still in existence at Nara in Japan proofs of the same genius of observation in certain carvings of Buddhist idols executed between the seventh and eleventh centuries, that would have done no discredit to the author of the Farnese Hercules.

With such monuments of minute and keenly appreciative study of nature before them, it is difficult to understand how the early leaders of the medical world, many of them men of high intellectual powers, should have rested satisfied with the complacently wrongheaded, pedantic treatises that nearly all they have thought fit to render as the account of their anatomico-physiological stewardship. The need for closer research was at least as pressing then as now, for the mortality from doctors and diseases must have been ghastly in those long ages, while sculptors saw and thought, and physicians dogmatised and quoted the ancients. It is, however, sufficient for our present purpose to show that anatomical knowledge, so far as it was exact, lay outside the medical profession, and that the artist-anatomist owed nothing and lent nothing to the physician.

Advancing at a stride to the period of revival of anatomical study in Mediæval Europe, we may classify the periods or stages of art in relation to medicine as follows :

1. The period of accredited utilisation of diagrams in medical teaching : nearly coincident with the fourteenth century.

2. The period of artistic and schematic anatomy : extending from the early part of the fifteenth to the beginning of the sixteenth century.

3. The period of accurate and artistic illustration of medical science by wood engraving : reaching to the middle of the sixteenth century.

4. The period of artistic engraving in copper : terminating in the second decade of the present century.

5. The modern period of multiplied technical resource in reproduction, with painstaking efforts to secure diagrammatic clearness of representation.

With the opening of the fourteenth century the new era of science and art was at hand, but the light in these early days was feeble and flickering. The first medical teacher definitely stated to have employed drawings as a means of instruction was a surgeon to Philippe le Bel, of France, named Henri de Medonville or Henricus de Hermondavilla, who flourished at the beginning of the fourteenth century. On the authority of Guy de Chauliac, one of his pupils, we learn that Medonville was in the habit of illustrating his demonstrations of anatomy by pictures or diagrams, thirteen in number, but we are quite in the dark as to the scientific or artistic qualities of these. We may, however, infer that the designs were traditional rather than realistic, as Chauliac's own knowledge of anatomy appears to have been limited to the teachings of the Arab School, which were Galenical in origin. However this may be, the innovation bore little fruit, for it was not until many generations later that we hear of a repetition of the experiment. The honours of the anatomical "renaissance" rest, not with Medonville, but with his Italian contemporary Mondino de' Luzzi (died 1318 or 1326), who, seeking to place the science upon a better footing, added to the study of the orthodox authorities of ancient times an experience, probably a very small one, derived from dissections of his own, and produced a 'Compendium' that held the first place in the schools for upwards of a hundred years. His work was devoid of illustrations or reference to diagrams, but Bertuccio, his successor in the School of Bologna, is said to have lectured with the aid of pictures, and it is possible that the practice descended to him from the older teacher. In surgery the manuscript of John Ardennes (Brit. Mus.), which also belongs to the fourteenth century, may be mentioned as including a few roughly sketched outlines of instruments and apparatus, but figures of this kind may be of much earlier date, and some have been attributed to the Arabian Abu'l Kasem in the eleventh century.

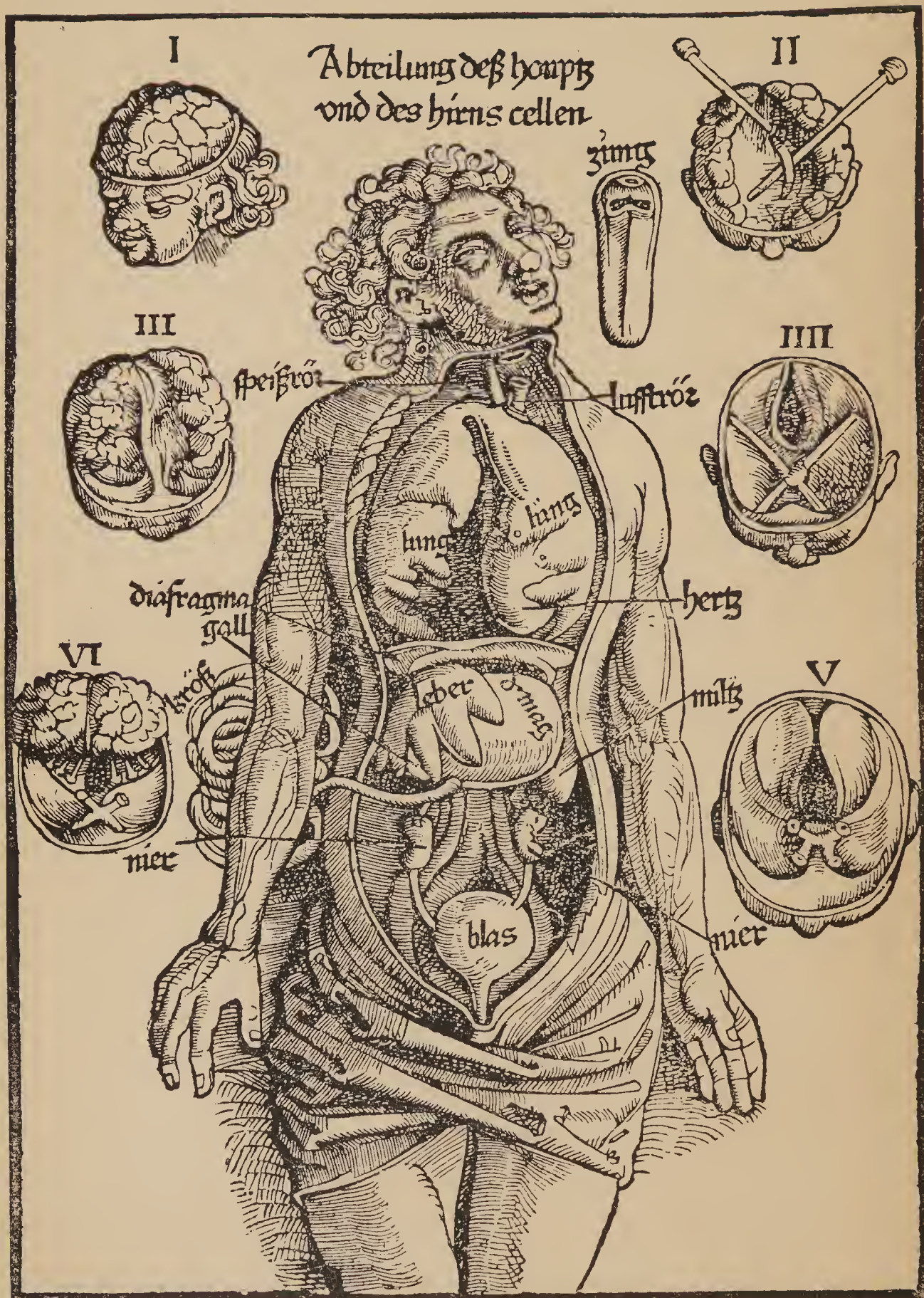
The first really important example of anatomical design in

its applications to medicine belongs to a period no earlier than the fifteenth century, and brings us into contact with one of the most towering and versatile figures in the history of art, Lionardo da Vinci—painter, sculptor, architect, scientist, poet, and musician. It was this richly endowed man who first amongst artists judged it profitable to place himself *en rapport* with the representatives of medical science. How great was the debt that anatomists owed to him we may never learn, but some idea as to the quality of the contributions of his pencil may be gained by a study of the few precious relics that have been spared to us. It is known that he became intimately associated with the physician Marcantonio della Torre, of Ferrara and Padua, and that he made for him numerous drawings to illustrate an anatomical treatise, but the untimely death of Marcantonio in 1506 or 1512, dissolved a connection which, under better auspices, might have raised him to the eminence afterwards occupied by Vesalius. As it was, the great work remained unfinished, all that had been written was lost, and with it disappeared the drawings of Lionardo da Vinci. Nearly all that we now possess of the anatomical work of the painter are a small series of representations of the bones and muscles, but these, if not scrupulously exact, yet stand unrivalled in vigour and expressiveness, and the scientific spirit of their design is manifested by the addition of analytical diagrams framed for the demonstration of muscular action, a subject on which the artist is said to have written a special treatise, another lost treasure. It may be worth while to call attention to a curious outline forming suite with these, a vertical section of two figures in the act of sexual congress. The motive may shock the over-sensitive moralist, but the aim of the sketch was purely physiological, and the result is objectionable only on the grounds of incorrectness of anatomical detail. The chief interest of the drawing lies in the fact that, unlike in the companion pictures, which were undoubtedly taken from actual dissections, the structural features were derived from the Galenical descriptions, a fault compromising to the reputation of Marcantonio, who, if he be held responsible for the scientific errors, could not have extended his investigations to the visceral anatomy of man.

The period of Lionardo and of the succeeding generation was a glorious one in the history of art, for while the great Tuscan was yet in the vigour of his age, a reflex of his many-sided genius appeared in Michelangelo Buonarotti—at once painter, sculptor, architect, engineer, and poet—and the younger man had reached the zenith of his fame when his predecessor, full of years and honours, expired in the arms of the monarch whose graceful tribute to genius did more to immortalise his royal memory than the Field of the Cloth of Gold and all the prodigal magnificence of a long, unlucky reign.

Michelangelo, like Lionardo, perceived at once the advantages to be derived from an association of art with anatomy. Realdo Colombo became his Marcantonio, and for twelve years, first in Florence then in Rome, he devoted himself to the study of the human body. The results are manifest, perhaps a little too plainly, in all his works. His statues of David, the Captives, and many others, are wonderful evidences of anatomical observation, and the preliminary models for his sculptures, in which the muscles were accurately built up in wax upon a framework of wire, attest the care he took to ensure accuracy. The nude figures in his "Cartoon of Pisa," or rather in the copy, which is all that is left to us, bear witness to the same comprehensive view of the truth that professed anatomists had still to seize; but the sculptor and painter gave nothing to medical science. The work of his friend Colombo appeared in 1559 without a single illustration beyond a woodcut frontispiece of a dissecting-room scene, and there is no record of any drawings by Michelangelo like those which Lionardo is said to have executed for Marcantonio. For artists the Florentine retaught the lesson impressed 2000 years before, and in even nobler style, by the sculptors of ancient Greece, that the most perfect ideal of beauty in art is attainable only by the most searching study of the real in nature.

The third great star of the Renaissance, Rafaelo Santi, again painter, sculptor, and architect, won triumphs as enduring as those which fell to the lot of his rival and contemporary, but they were of a somewhat different nature. He was perhaps less an anatomist than either Lionardo or Michelangelo, but fewer years were allotted to him for the consum-



From the *Spiegel der Artzney*, by Laurentius Phryesen or Frisen. Strassburg, 1518. Fol. min.

Dr. J. F. Payne's Collection.

mation of his studies, for he passed away before he had ended the fourth decade of his brilliant career. It is, nevertheless, proved by some of his sketches not only that he comprehended the importance of the science, but that he was no mean proficient in those portions of it which are most essential to the painter.

To this constellation may be added a fourth luminary, of smaller magnitude, in Rosso de' Rossi, a late contemporary of Rafael. He was the first artist who attempted to prepare a volume upon anatomy for the use of painters, but, unfortunately, he did not live to carry out his design. The one plate, containing representations of the bones and muscles, given to the world as an earnest of his good intentions, is, however, so rich in strength and fidelity that it has been mistaken for the work of Michelangelo himself. The original is extremely rare, but a reduced copy may be seen in Choulant's '*Geschichte und Bibliographie der anatomischen Abbildung*' (1852).¹

So far, the art of the fifteenth century bore little relation to medicine, if we omit from consideration the drawings said to have been made by Lionardo for Marcantonio; and the few illustrations that had appeared in the medical writings of the period might well have been spared. While the great painters left accurate record of all that their dissecting-room experiences had revealed, two of the most celebrated physicians of the age, Magnus Hundt, of Leipzig, and Lorenz Phryesen, of Colmar, found nothing better to illustrate their treatises than the anatomy of Galen; and Phryesen, in a portentous tome entitled '*Spiegel der Artzny*' (1518), gives us only a wretched caricature of the skeleton, a view of the abdominal and thoracic viscera that was probably a reminiscence of some half-hearted autopsy of a dog or swine, one or two extremely confused sketches of the brain, and a carefully executed picture of the august teacher seated in academical dignity before a meek disciple, who cringes bare-headed to receive with unfathomable faith and patience the flatulent pedantry enunciated from the magisterial chair. It would be amusing, if not instructive, to

¹ This valuable book, together with the '*Graphische Incunabeln für Naturgeschichte und Medicin* (1858),' by the same author, should be read by all who are interested in this subject.

quote the opening passages of the dialogue of question and answer as given by the author himself, but neither art nor medicine will justify the digression. History will not repeat itself; for even though a chastening Providence were to create another Phryesen, in what corner of our lecture rooms might we hope to find another such a pupil?

The first illustrated typographic volume upon practical medicine and surgery was the 'Fasciculus Medicinæ,' published in 1491, by Johannes de Ketham, an Italian physician. This contained some woodcut representations of visceral anatomy and surgical instruments, and the Italian translation, issued two years later, showed amongst other plates a view of a sick chamber with a man stricken by the plague, and an interesting dissecting-room scene. The book appears to have been very popular and ran through six editions between 1491 and 1522. Another early set of surgical engravings appeared in the 'Feldbuch der Wundarzney' of Hans von Gerssdorff, of Strassburg, published in 1517, to show woodcut figures of the skeleton and viscera, surgical instruments of various kinds, and the current methods of treating fractures and dislocations. It is nearly to the same date that we must assign the most ancient illustrations of 'Midwifery,' published by Rösclin, a physician of Wurm and Frankfort about 1513. I have not been able to see a copy of this work, but although the pictures are said to be fairly good, we may safely assume that none of the volumes of this time presented anything remarkable from the artistic point of view.

The *second period*, that of artistic illustration of anatomical, medical, and surgical works by wood engravings, began in the third decade of the sixteenth century with the appearance of a commentary upon the anatomical works of Mondino by Berengario da Carpi (1521), which was followed in the next year by a compendium by the latter author who therein corrected many of the errors of his predecessor and added much new material. Both of these books were embellished with woodcuts, a few of which, chiefly myological, were correctly drawn and of some artistic value, while others were of a traditional character and in accordance with the descriptions of Galen and the Arabian school. Nearly twenty years later further contributions of a very similar kind were



From the *De humani corporis fabrica*, by Andreas Vesal. Basle, 1543. Fol. max.
Dr. J. F. Payne's Collection.

made by Johann Eichmann or Dryander, a professor at Marburg, who issued an original composition upon the dissection of the body in 1537, with wood engravings not unlike those of Berengario; and in 1541 an edition of Mondino, in which many of the illustrations executed for the previous volume were utilised for a second time.

Berengario and Eichmann did good service in the cause of anatomy and prepared the way for a higher school that was destined to relegate that of Mondino to the Araf of the imperfect sciences. Berengario had half caught the idea of a genuine treatise upon the anatomy of man, based upon direct investigation, but the consummation of such a work was reserved for a greater mind, that of the Belgian, Andreas Vesal.

The student of medicine of the present day who recognises the name of Vesalius only in association with an unimportant little foramen in the base of the skull, is scarcely aware that to his precocious genius we owe the entire scheme of human anatomy as a study involving precision of observation and description. Yet so it is, for to turn from the pages of his predecessors to the ‘*De Humani Corporis Fabrica*’ of Vesal, is to step from the confusing glimmer of conjecture and tradition into light and order. Much, indeed, is here left incomplete, but all is prepared for completion. And it is to be especially remarked that, from the first, the great teacher availed himself of the assistance of the painter and engraver, and not only selected artists of the highest capacity but superintended and directed their interpretations of the subject at every step. It is possible that he himself learned much in teaching his coadjutors, and it is certain that the value of his own labours was doubled by the aid derived from the skilled pencil which wrote his story in characters that all men understood: it was, indeed, by means of pictorial broad sheets—a form of publication that appears to have been very prevalent in the sixteenth century—that his work first become known, for six large plates engraved on wood after the drawings of a pupil of Titian named Johannes Stephen van Calcar appeared in 1538, in the form of “*Fliegende Blätter*,” before the author had completed his twenty-fourth year.

The *magnum opus* was published at Basle in 1543. To

men of science it was a revelation, as an example of anatomical research upon a scale unprecedented both in magnitude and minuteness; and to amateurs of art the volume has always been precious on account of the happy union of power and veracity in the designs, and the skill with which they have been transferred to wood by the unknown engraver. The drawings, with a few exceptions, display a remarkable power of conveying the essential features of the subject with the smallest amount of apparent labour: unlike many of the illustrations of later works, they never digress from the object they were intended to serve, and although a little artistic fancy appears in the attitudes and attributes of some of the full length figures, the cuts are for the most part as sober and practical as those which appear in the pages of Gray or Quain. In point of accuracy of detail there was considerable diversity in the various sections of the work. The most satisfactory presentments, as might have been conjectured, were those of the undissected body and of the bones and muscles: the nude forms which display the surface markings and proportions are striking, noble, and expressive, and leave nothing to be desired in correctness of outline; the skeletons and myological figures, inspired with life by the fancy of the artist, were freed from the repulsiveness of the charnel house without sacrifice of the essential truths revealed by the scalpel; but the drawings illustrative of the nervous system are amongst the least successful, although the dissector had prepared his material with skill and care. It is not indeed to be expected that many of the cuts would display the minute indications of detail that are looked for in even the least ambitious manual of our day, but the main features were faithfully described and portrayed, and the work as a whole was a triumph of learning, intelligence, patience, and artistic taste. It is difficult to say whether it was the illustrations or the text that exercised the stronger influence over the contemporaries and followers of the author, but for a century afterwards the anatomists of Europe did little more than compose variations upon the conjoint triumph of Vesal and Calcar. One other edition appeared before the death of the writer in 1564, but the artist did not live long enough to add to or correct any of the contributions he had made to the original issue.



ANDREAS VESAL. From the *De humani corporis fabrica*.



From *Œuvres d'Ambroise Paré*. Paris, 1561. Fol.



From the *De dissectione partium Corporis*, by Charles Estienne (Carolus Stephanus).
 Paris, 1545. Fol. min.

Dr. J. F. Payne's Collection.

A complete list of the works in which Vesal's illustrations were imitated would be too long to offer in this place, but a few deserve a passing allusion. The first systematic treatise upon anatomy in England was a compendium by Thomas Geminus in 1645, in which the designs of Calcar were translated upon copper-plates, losing nearly all their strength and beauty in the process. A smaller and later volume by John Banister, entitled 'The Historie of Man, Sucked from the Sappe of the most approved Anathomists and published for the Utilitie of all Godly Chirurgians within this Realme' (1578), borrowed a few woodcuts from the same source; the well-known 'Description of the Body of Man,' by Helkiah Crooke, published in 1616, had also sucked a good deal of its "sappe" from the great Vesalian tree of knowledge; and lastly, in France, the works of Ambroise Paré (1560) were illustrated largely by copies from Vesal, but included many other wood engravings of great interest for the student of the early history of surgery.

This digression has, however, led us away from a contemporary of Vesal, who must be regarded as an important and independent worker in the same field. In 1545, two years after the appearance of the '*De humani corporis fabrica*,' a French physician named Charles Estienne or Stephanus published a book descriptive of the dissection of the various parts of the human body, embellished with woodcuts of a curious character. The author, whose work was commenced before the appearance of that of Vesalius, was a practical and erudite anatomist, and would have made a far more conspicuous figure in the world of science, had he not been to some extent hidden within the gigantic shadow of his rival. As an anatomist, however, although an original worker, he was greatly inferior to Vesal, and he employed the assistance of art in a wholly different manner. In Vesalius the illustration, while of the highest quality, was always secondary to the subject of the text; but in Estienne's cuts the anatomy often appeared to be little more than a vehicle for the fanciful designs of the draughtsman. Some of the drawings were indeed rather striking as artistic compositions, and were not unskilfully engraved, but they included an exuberance of extra-anatomical detail and a misplaced affectation of sculptural

effect that often seem grotesque in their disproportion to the real object of the illustration. In one plate, for example, we see the entire form of a man standing in the foreground of a pastoral landscape, his calvaria hanging upon a withered branch above his head, while his denuded dura mater turned towards the spectator constitutes the square inch of anatomy in the quarto page of engraving. In another, a nude full length figure of a woman seated in a chamber of severely classical architecture, has no further object than to display the contours of the external genitals. In a third, a lady reposes in beatific slumber upon a mass of billowy cushions, undisturbed by a fearful gap in her abdominal wall that exposes what the artist conceived to represent the allantois. Nevertheless, the anatomy was for the most part fairly truthful, and it was evident that the author had carefully supervised the work of the engraver, for in many plates it may be seen that a portion of the block, probably where the first interpretation was unsatisfactory, has been cut out and replaced by a new and presumably a better rendering.¹

The *third period*, extending from the middle of the sixteenth to the early part of the nineteenth century, may be termed that of artistic engraving on copper. It is, of course, well-known that chalcography had been practised long anterior to this time—at least, as early as 1461—and was employed with admirable effect by Mantegna before the end of the fifteenth century, but the few examples of the process that had appeared in medical books before the seventeenth century were of small artistic importance when compared with the contemporary work of the wood engraver, and it was not indeed until the eighteenth century that we were able to show more than two or three worthy specimens of a branch of art over which had been expended the genius of a hundred great masters of the brush and graver.

Amongst the first of the new series stands the ‘*Historia de la composicion del cuerpo humano*,’ by Joan Valverde de

¹ It has been supposed that, as the anatomical details in a few of these plates were confined to those portions of the block which had obviously been let in after the completion of the rest of the engraving, the woodcuts had originally been executed for a different purpose, and were merely adapted by Estienne. A careful examination of the series will, however, disprove this view.



From the frontispiece to the *De re Anatomica*, by Matteo Realdo Colombo.
Venice, 1559. Fol.

Dr. J. F. Payne's Collection.

Hamusco, a Spaniard, who had studied anatomy under Colombo and Eustachi. The illustrations to this work, attributed to a Spanish painter named Becerra, are mostly adaptations of the pictures of Vesalius, and are skilfully engraved on copper. One, however, is entirely new, and offers a curious instance of the tendency manifested by the old anatomical artists to make the most of the subject from their own point of view. It represents the figure of a man who, having just succeeded in divesting himself of his skin, stands in an attitude of dignified self approbation, grasping the bloody knife in one hand, and with the other holding up to view his detached integuments, from the midst of which the flaccid cortex of his face gazes in feeble deprecation at the spectator. Valverde's teacher, the Italian physician, Bartolomeo Eustachi, allowed his pupil to forestall him in publication. He, also, had many plates engraved to illustrate his anatomical writings, but only eight of these appeared during his life, in association with his '*Opuscula Anatomica*' in 1564. Thirty-nine other engravings, executed under his directions not later than 1552, remained unutilised until forty years after his death, when they were at length published by Lancisi, together with the original descriptions, under the title of '*Tabulæ Anatomicae Bart. Eustachii*' (1714). Despite their prolonged repose in the Sleepy Hollow of the lumber rooms of Eustachi's unappreciative heirs, the pictures were so little behind the age when they were introduced to the world that edition after edition was called for, the demand ceasing only at the beginning of the present century. The representations were indeed richer and more trustworthy in detail than any that had gone before, and although both drawing and engraving were excessively feeble and unattractive, the scientific spirit of the plates was more than sufficient to compensate for their æsthetic defects.

The use of wood engraving in the reproduction of anatomical and surgical works did not end during this latter half of the sixteenth century, or afterwards, but it ceased to hold an important place in the illustration of the more ambitious works of our professional ancestors. Many writings, however, of great value, such as the contribution of Constantio Varoli to the anatomy of the brain ('*De Nervis Opticis*,' &c.,

1573); the ‘*Historia plerarumque partium humani corporis*’ (1585) of Salomon Alberti; and the artistic treatise ‘*Varia Commensuracion para la Escultura y Arquitectura*’ (1585) of Juan de Arphe; but the power that stamped the cuts in Vesal had vanished.

In the seventeenth century copper-plate engravings held undisputed sway. The anatomical works of Giulio Casserio (1627), and those of his successor in the chair of Padua, Adrian van der Spieghel (Spigelius), were abundantly and artistically illustrated by this process, after the designs of Fialetti, a pupil of Cremonini and Robusti. Another precious set of drawings were made a little later by the famous painter Pietro Berrettini or Pietro da Cortona, for the anatomist Johannes Maria Castellanus, and skilfully transferred to copper; but these plates, like those of Eustachi, were allowed to remain buried, and it was not until a century later—in 1741—that they were discovered and published; a lapse that was the more to be regretted on account of the spirit and accuracy of the representations. In the sketches of Fialetti and Berrettini, as in most instances where painters have interested themselves to work for the anatomist, the grimness of the motive disappears under an artistic glamour of vitality, or even of humour. In the presentment of the pregnant uterus in the ‘*De Formato Fœtu*’ of Spigelius, the “subject” is no dissecting-room corpse, as in Hunter’s plates, but a lady of elegant proportions and self-possessed bearing, who stands apparently in animated conversation, naked and unashamed in the publicity of a broad campaign; and neurology is demonstrated by Berrettini, in the figure of a man in an advanced stage of dissection, who with an air of refined courtesy holds aside his sternum to facilitate the inspection of the course of his right pneumogastric, while extending in graceful gesture an arm from which the muscles, cut from their attachments, swing by the supplying branches of their nerves in helpless shreds about him.

A noteworthy feature of the same period was the invention of dissected plates of anatomy, in which the various structures of the body were displayed as far as possible in their natural interrelations by means of overlapping segments of paper, each bearing the outlines of a portion of the surface, or of an



From the *Tabulæ Anatomicæ*, by Giulio Casserio. Venice, 1627. Fol.
Dr. J. F. Payne's Collection.



From the *Myographia*, by John Browne. London, 1684. Fol.

Dr. J. F. Payne's Collection.

organ or set of organs, and so attached that it might be reflected in the natural order of superposition of the parts represented. The idea seems to have emanated from Johann Remmelin, of Ulm, whose tables first appeared, without his permission, in 1613, under the title of '*Catoptrum Microcosmicum*.' The plan was not without merits, and has been utilised with various modifications by many authors of later times, but the pictures have generally been lacking in originality and artistic interest. Those of Remmelin offered nothing remarkable in this respect, but his book is of value to the curious on account of the ingenious way in which the draughtsman has taken advantage of the method to impart a metaphorical flavour to the scientific details of his designs by masking the female genitals by a warning apron representing the ghastly face and viper locks of a gorgon; and preparing the way for the exposure of the womb by a veil of smoke and flame, pregnant with new life, arising from the ashes of an expiring phoenix.

The great landmark of progress in the yet somewhat sterile region of medical science, the immortal '*Exercitatio Anatomica de Motu Cordis et Sanguinis*' of Harvey, was printed in 1628, but the work owed nothing to the quality of the copper-plates which illustrate it, nor did English art appear to advantage in any of the medical publications of the seventeenth century. John Woodall's '*Military and Domestic Surgery*' (1641), although a very fair record of the surgical practice of the time, was scarcely adorned by the rough copper cuts of instruments with which it was illustrated, and the '*Opera Omnia*' of Willis (1676) was no more worthily embellished. The plates in Samuel Collins' '*System of Anatomy*' (1685), executed by Faithorne, were of a much higher character, but displayed less excellence than might have been expected from so able an engraver; and those of a nearly contemporary treatise upon the muscular system, by John Browne, a surgeon to St. Thomas's Hospital, have still smaller claims to our admiration. The pictures in the latter case were, however, interesting from the fact that the names of the muscles were engraved upon the parts (a practice which was revived in modern English text-books by Mr. Luther Holden); but the dissected figures, drawn with pretentious badness, are placed

in the most curiously affected and self-conscious attitudes, as though they were proud of the parade of their anatomical details, and even the claim of originality is wanting, since many are obviously imitated from the earlier and better illustrations of Casserius. The work, however, ran through four editions, so that it must be supposed to have possessed qualities of more importance than those of mere attractiveness.

The palm of artistic excellence in the medical books of the seventeenth century belongs to Holland. The '*Anatomia humani Corporis*' of Godfridus Bidloo, professor of anatomy at the Hague and Leyden, and at one time physician to William III of England, did not add largely to science, but the author took the judicious step of securing the services of the painter Gerard de Lairesse and an engraver (A. Blooteling?) of almost equal talent, and to the present day his book has remained greatly prized if little read. Many of the plates, although of astonishing vigour, are unfortunately too naturalistic both for art and science, but the man who was usually almost Zolaesque in his superfluous realism could not always resist the temptation to pictorial allegory. Two of his osteological designs are especially remarkable as works of art: in one of these, a figure standing within the entrance of a sepulchre, magnificent even in its fleshlessness, holds up an hour-glass as though to warn us that our state was separated from his only by the moments of passage of a few falling grains of sand; and in the other, the animated skeleton is seen retiring into the grave, not without a certain grace and dignity, to escape a world where the stern simplicity of the unclothed bones could find neither sympathy nor repose. These plates were pirated some years later by an English surgeon, William Cowper, to illustrate a work of his own.

Before leaving the seventeenth century it may be noticed that two of the greatest painters of that period, Rembrandt and Rubens, have left their mark in connection with medical science; Rembrandt in his celebrated picture of the physician Van Tulp demonstrating the muscles of the arm in the anatomical theatre of Amsterdam (painted 1632), and Rubens by some bold and characteristic sketches of the superficial forms of anatomy, one of which has been rather ill reproduced on copper in the '*Myotomia Reformata*' of William Cowper.



From the *Anatomia humani Corporis*, by Godefridus Bidloo. Amsterdam, 1685.
Fol. max.

The next century, the eighteenth, was an auspicious one for European medicine. It is true that it gave us no successor to Harvey, but the senseless opposition to his discoveries which embittered the later days of the great physiologist and disgusted him with his fellow-men became ridiculous, and at last extinct. It was now that an aphorism of Hippocrates could no longer suffice to sanctify medical manslaughter, and it was now that a galaxy of thinkers and workers were replacing empiricism and tradition by experiment and observation. But the scientific advance did not yet bring with it any greatly increased demand for the aid of art, and, as before, nearly all that could be looked upon with gratification in the pictorial illustration of medical literature was attached to the single branch of anatomy. The illustrations to books on surgery or pathology were scanty and were rarely satisfactory, either from the artistic or scientific aspect. Practical medicine had developed few of the features that were to render the teacher grateful for drawings or diagrams to impress the necessary facts of pathology and diagnosis, and midwifery has scarcely attained a position as a specialty. There was, however, no lack of splendid anatomical folios, printed in the most sumptuous style, and embellished with costly plates and exquisitely engraved vignettes and *culs de lampe*. How a sufficiency of purchasers could be found for such princely volumes it is hard to say, for the medical profession was not rich, and even the burin of Van der Gucht, of Wander Laar, and of Strange, and the harmonious colour painting of Ladmiral and Gautier, could scarcely attract the outside world when employed to depict the trochanters or condyles of a femur, the layers of muscle clinging to a half-denuded skeleton, or the foetus curled up within the ripped and gaping womb; yet it is certain that the subscription list was a very substantial one.

Practically, there was but a single method of reproduction during the period comprising the eighteenth and the first twenty years of the present century, and that an expensive one, etching on copper; for the wood block had fallen from its high estate and gave us no more pictures like those of Calcar.

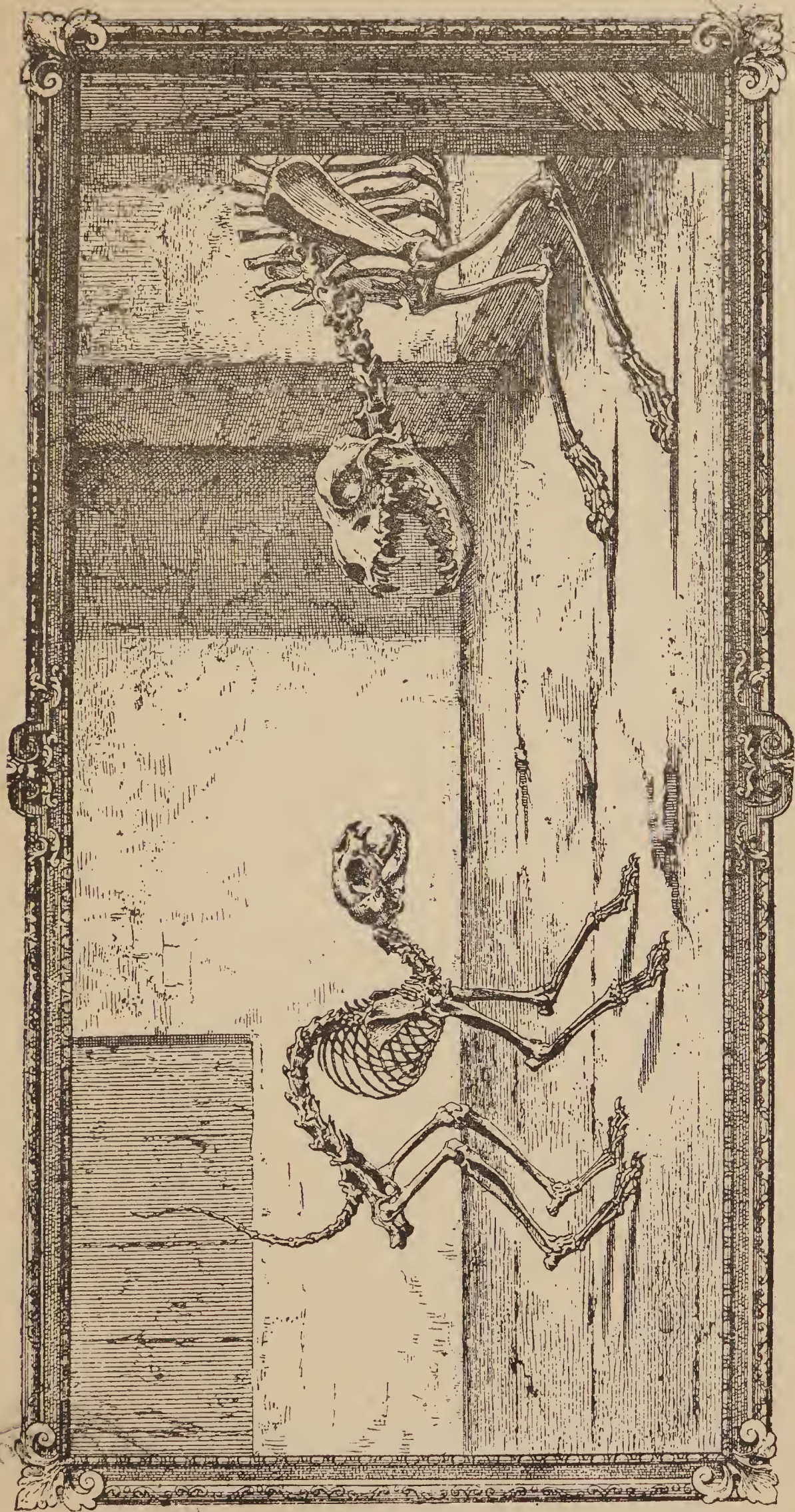
The list of notable volumes is too large even for enumeration, but we may select as specimens for beauty of illustration,

the 'Osteographia, or Anatomy of the Bones,' by William Cheselden, of St. Thomas's Hospital (1733), the 'Tabulæ sceleti et musculorum corporis humani' of Bernhard Siegfried Albinus, of Leyden (1747), and the 'Anatomia uteri humani gravidi,' by William Hunter (1774). Cheselden's work, although perhaps unsuitable for the modern student of osteology, was a monument of pictorial accuracy for its time, and placed side by side with later essays in the same direction such as the 'Tabulæ ossium humanorum' of Albinus (1784), and the osteological section of John Bell's 'Anatomy of the Bones, Joints, and Muscles' (1810), is superior beyond comparison. It includes, moreover, besides the representation of typical human osteology, some characteristic examples of bone diseases and a number of beautifully etched representations of skeletons of the lower animals. The author, a man of cultivated taste, like his equally famous colleague Dr. Mead, spared neither trouble nor expense to secure the most artistic reproduction of his preparations, but he was above all a man of science, and as he did not care to risk any sacrifice of accuracy by trusting to the unaided eye of the draughtsman, he had each specimen drawn under the camera obscura. The result, as may be seen, lost nothing in truth or vigour, and the 'Osteographia' is a volume we are proud to number amongst the medical literature of our country. The way had been prepared for this large work by the modest octavo, entitled 'The Anatomy of the Human Body,' first published in 1713, and which, like its successor, included morbid as well as normal anatomy. It was necessarily a mere outline, but it contained much that was of interest, and the plates, engraved by Gerard Van der Gucht from drawings made with the assistance of the camera, were novel and attractive. Two of the number, a skull and a myological rendering of a sculpture representing the struggle of Hercules and Antæus, may be regarded as good examples of the style.

The atlas of Albinus was a more important though in some respects less artistic work than that of Cheselden. Myology had been well and broadly treated in the illustrations to many older volumes, but the minutiae of form, origins, and insertions of each individual muscle were here represented for



VIGNETTE. From the *Myotomia Reformatata*, by William Cowper. London, 1724. Fol. max.



From the *Osteographia*, by William Cheselden. London, 1733. Fol. max.
Dr. J. F. Payne's Collection.

B. ALBINUS



From the *Tabulæ sceleti et musculorum corporis humani*,
by Bernard Siegfried Albinus. Leyden, 1747. Fol. max.

the first time, and the task was accomplished with so much thoroughness that little has remained for us to add. The drawings of the various figures display great skill and greater accuracy, and although the engraver has injured the effectiveness of the design by a mechanical hardness of style and an inability to reproduce the textural character of the structures, he was able to preserve so well the essential truths that the noble atlas fully merits the rank it held during three generations as a standard of reference both for the artist and for the surgeon, and of the flattery of imitation that led to the incessant repetition of the plates upon almost every scale up to that of nature throughout the course of the next seventy or eighty years. It was not until near the middle of the present century that its place was taken by other works more suitable to the requirements and pocket of the student. The illustrated volumes issued by the same author, devoted to the bones and the gravid uterus, are of less importance and were surpassed, the one by Hunter, the other by Cheselden.

William Hunter's treatise on the 'Gravid Uterus' may rank with Cheselden's 'Osteography' as an ornament to the library, for the best art available at the time had been lavished over a subject that would appear little susceptible of æsthetic treatment. The foremost engravers of the day were employed upon the plates, and one of the number, the famous Sir Robert Strange, is said, in John Hunter's preface to the treatise, to have given "his advice and assistance in every part of the work with a steady and disinterested friendship." It is doubtful, however, whether the illustrations are to be preferred to those dealing with the same motives in Bidloo's 'Anatomy.'

After these volumes may be named another of corresponding dimensions, the 'Myotomia Reformata' of William Cowper. This writer, it may be remembered, was convicted of acting somewhat discredibly in the annexation of Bidloo's plates, but the engravings in the 'Myotomia' were undoubtedly original. They were designed with moderate correctness and the execution was in good style, but the existence of the Atlas of Albinus deprives them of every *raison d'être* except, perhaps, that conferred by the quaintness of the initials, head-pieces, and *culs de lampe*. Other examples of anatomical plates em-

braced within the same period were those illustrating the 'Observationes Anatomicæ' of Santorini (1724); the 'Demonstrationum Anatomico-pathologicarum' (1760), by Peter Camper, of Leyden, who was an accomplished artist as well as an anatomist and physician; Mascagni's useful but not very pleasing pictures in his 'History of the Lymphatics' (1787) and in his posthumous 'Anatomia per uso degli studiosi di Scultura e pittura' (1816); those of J. J. Sue, illustrating a translation of Monro's 'Anatomy of the Bones' ('Traité d'Osteologie,' 1759), and his own 'Elemens d'Anatomie a l'usage des peintres, des sculpteurs, et des amateurs;' Van Soemmering's 'Tabula Sceleti feminini' (1797); Caldani's 'Icones Anatomicæ' (1801-13); the bold but coarse, and not very exact engravings of the 'Bones, Muscles and Joints' by John Bell (1810); and the less inelegant but still unsatisfactory etchings of Sir Charles Bell, published between 1816 and 1833. In conclusion, we may refer to the hideous anatomical plates of Lizars as works suitable to mortify the flesh after vain-glorious rejoicing in the splendour of the embellishments bequeathed to us by Cheselden and Hunter.

The application to medical and anatomical purposes of printing in colours from engraved copper-plates was originated by Le Blon as early as 1721, and further developed by Jan Ladmiral about 1736, and by J. F. Gautier d'Agoty and his son between 1745 and 1773. The process is well exemplified in Ladmiral's plates of the male genitals, and in Gautier's illustrations to Duverney's 'Description of the Muscles' (1745). One of the latest specimens of the method may be found in Travers' treatise upon 'Diseases of the Eye' (1811). Alibert's 'Lectures upon Diseases of the Skin,' which appeared in 1814, were also illustrated by chalcographic plates printed in colours, but these were engraved in a different and far less forcible style.

The *fourth* and latest *period* may be dated from the close of the second decade of the present century. Medicine had long since outgrown the narrow limits prescribed by the jealous ignorance of many of its early votaries, and the labours of men like Vesal, Harvey, Paré, Hunter, Mascagni, and Bell, had laid the foundations of a mighty edifice, but it was reserved for the multiplied workers of more recent years to develop the great pile that now rises around us with such

incredible swiftness. Where its growth must end it is not easy to say. In some of its parts the task appears to have approached completion, in others the new additions, abundant as they are, fall into speedy dilapidation; much that once seemed sure and solid is found to crumble into dust under the light of new researches; here and there advance is opposed by petty obstruction or endangered by scamped or dishonest work, but the general law is one of ceaseless growth associated with an ever increasing subdivision of labour. To assist in the great work almost every department of science has been laid under contribution, and the stout yeoman service rendered by art is by no means the least important of the motive forces now at work.

Art has become more and more indispensable to us as an aid both to record and to explication. The diagram, the more highly-finished drawing, the photograph, and the model, serve as a new language that speaks with strength and clearness where written or spoken words would convey their meaning slowly and imperfectly. The new period has been characterised by an immense quantitative augmentation of illustrations to medical literature, by the increasing preference shown for diagrammatic clearness over artistic effect in the rendering of anatomical and pathological detail, and by the multiplication of methods of pictorial reproduction. We have no Lionardo da Vinci, Calcar, Fialletti, or Berrettini, but the modern draughtsman makes up in comprehension of the needs of science all that he lacks in artistic genius. We can boast no engravings as effective as those of the broadsheets of Vesal, or even of the plates of Bidloo and Cheselden, but we are able to employ new processes that reproduce the drawing or the original object without error of interpretation, and others that give us very useful effects of colour at small expense. Our art is less picturesque, but more serviceable and more easy of access.

Engraving on copper, which occupied so important a place during the last period yielded to cheaper and more readily adaptable processes, but a few specimens of chalcography appeared even as late as the middle of the century. The steel plate, as modified by Warren in 1818, served for works in which delicacy of line was more particularly sought,

but the result was not satisfactory. Wood engraving, which had fallen into decay, was revived by the teaching of Thomas Bewick and placed once more in the forefront amongst the resources of the book illustrator. The colour printing of Le Blon, Ladmiral, and the Gautiers yielded to chromolithography and afterwards to chromoxylography. Lithography, invented about 1796, was destined to hold an important place in medical illustration. Photography and photographic processes of engraving were found of value where an exact transcript from nature or from a drawing was especially desirable. Finally, drawing and painting served as before to illustrate papers and reports of cases when immediate multiplication of the design was unnecessary or impracticable; and hand-colouring was employed to lend character to pictures engraved by the ordinary processes.

The first important medical essay in lithography appears to have been the engraved plates of the 'Arteries,' published by Tiedemann in 1822, but the result here was by no means striking. It was not long afterwards, however—in 1831—that the large work of Bourguery, illustrated by Jacob, the father of the modern French school of anatomical drawing, threw a new light upon the possibilities of engraving on stone. The somewhat less vigorous but more accurate plates executed by J. B. Leveillé, Jacob's favourite pupil, for Fau's 'Anatomie des formes exterieures du corps humain' (1845), and the nearly contemporary drawings of the bones, ligaments, and muscles for Bonamy by Emile Beau (1844), fully maintained the reputation of the new manner; but the highest point of excellence was reached in Leveillé's designs for Hirschfeldt's 'Anatomie du Système Nerveux' (1853), which has placed France beyond rivalry in anatomical illustration. In this country many good examples of the same method of reproduction have seen the light; some by professed draughtsmen like Ford, and others by such distinguished members of our own profession as Maclise, Marshall, Holden, and Godlee.

A lithographic process which secures all the effect of a delicate engraving in steel has been largely utilised for histological drawings, particularly in the 'Transactions' of the various medical societies and elsewhere, and with great success. Mr. Treves' illustrations to his work on 'Tubercle,' and those

of Mr. Harrison Cripps in his contributions to the Pathology of the Rectum, may be especially referred to in exemplification. Engraving on steel as applied to medical pictures cannot be regarded as successful even where the preliminary drawings have been supplied by highly competent hands: the best specimens are perhaps to be found in Bernard and Huette's '*Chirurgie Operatoire*,' in the anatomical works of Beraud, Rudinger, and Anger, and in Heath's '*Operative Surgery*.'

In wood engraving, despite the great development of the process during and since the time of Bewick, there is little that we can show with gratification. As in the case of etching on steel, the work of the artist is usually translated in a more or less ignorant style by the engraver before it is presented to the public, but one remarkable exception should be pointed out. The cuts by William Bagge, after the drawings of his brother, which appear in Wilson's '*Anatomist's Vade Mecum*,' Fergusson's '*Operative Surgery*,' and other volumes, are triumphs of veracious expression and artistic feeling; but here the engraver knew his subject. Some of the cuts by Salle in Sappey's '*Anatomy*' may be noticed on account of their great delicacy of execution, but are distinctly inferior in other respects to the works of Bagge; the illustrations to Neumann's '*Hautkrankheiten*' deserve remark, as good applications of the process to histological design; and lastly, the correct and graceful drawing of Cuthbert in Marshall's '*Anatomy for Artists*' has been skilfully transferred to the block by Nichols. As a rule, however, the woodcuts illustrating medical books do not deserve a large amount of credit for artistic beauty or scrupulous accuracy. A few rise above the level of average excellence, more fall below it, and it is not pleasant to confess that the lowest depths of badness seem to have been reached in two or three works published within the last few years in our own country.

Chromoxylography, a process of respectable antiquity, has been applied to medical illustration only within the last few years, chiefly for the purpose of accentuating the course of vessels in anatomical text-books, but a higher promise is indicated by the pleasing and expressive cuts in Syme and Woodhead's '*Practical Pathology*' (1884), Merkel's '*Topographische Anatomie*' (1885), and a few other recent works.

Photogravure has been successfully employed in Mac Cormac's 'Notes of an Ambulance Surgeon,' and more recently in plates of cerebral topography and other works, and it is certain that before long the numerous modifications of photographic reproduction are likely to take a very important place in the illustration of medical literature, on account both of their cheapness and their unerring though unselective exactness.

Glyptic art as applied to artistic anatomy probably dates from the time when Michelangelo commenced the plan of moulding on a small scale in wax the muscular forms of figures which he proposed to execute in marble. Becerra, the painter who illustrated Valverde's book on Anatomy, is said to have made the first anatomical figure in plaster for the use of artists. Fischer, a professor of anatomy to the Academy of Sculpture in Vienna, near the end of the last century, was the author of a striking model constructed for the same purpose; and more recently two or three other examples, which may be seen in most of our schools of art, have been provided as a guide for students of drawing.

Sculpture as adapted to the illustration of medical anatomy is of greater antiquity. The figure found in Rome in the villa of a physician to the Emperor Augustus, has been already mentioned, and wood carvings of a similar nature having long been employed both in China and Japan. The more accurate specimens, however, are of recent date. One of these, still in use, is a complicated life-size model in plaster, made in Paris, which can be taken to pieces in such a manner as to demonstrate more or less correctly the form and relation of nearly every part of the body; but the idea has been brought into service in a far more scientific manner by Professor His, who, by taking casts of organs that have been frozen *in situ*, has given us a means of studying the topography of the viscera far superior to anything before at our disposal. The use of plaster casts of pathological specimens needs only be mentioned in passing.

Models in wax *à la Tussaud* have been in use for many years, and much artistic talent has been employed in conferring upon them a realistic character, which has sometimes been

greatly abused in the interests of quack "Museum" proprietors. For purposes of anatomical teaching they are falling into disuse, but they still supply a want in pathological reproduction. Surgery has sought the aid of glyptic art to furnish artificial substitutes for parts of the body that have been lost by accident or disease. A very early example of Roman origin has lately been added to the museum of the Royal College of Surgeons in a beautifully modelled bronze leg made to replace a limb that had perhaps been sacrificed in warfare. The manufacture of false teeth, a very ancient branch of industry, has now assumed gigantic proportions, and we may, further, in the present day purchase with trifling outlay compensation for ravages still more destructive of beauty, in the form of factitious noses sculptured with the skill of a Praxiteles, and limpid eye "scales" that seem capable of expressing all the emotions of the soul.

The utility to the physician or surgeon of a share of artistic capacity requires little demonstration. The minute analysis of form demanded by every honest attempt at portraiture brings with it a training of eye that may prove of no small value in diagnosis and in operative treatment. The physician or surgeon recording the signs of disease may furnish himself with pictorial notes that will prove an invaluable supplement to his literary memoranda; and the teacher will often times find himself able to flash an idea by the magic strokes of a piece of chalk upon a black board when the most eloquent sentences have failed to kindle the spark of comprehension in his audience. For this it is not necessary that the practitioner should be an "artist" in the sense in which the term is employed by the connoisseur: a simple knowledge of the rudiments of drawing, with such powers of imitation as are latent or evident in most of us, will be sufficient for ordinary purposes. Although Marcantonio and Vesal, over three hundred years ago, were fortunate enough to secure the aid of men like Lionardo da Vinci and Stephen van Calcar, art of so high an order of excellence is now a luxury that we cannot hope to engage in the service of medicine; but, fortunately, we may console ourselves by the assurance that we do not

require it. As admirers of the beautiful we must satisfy our aspirations outside the sphere of our profession and we can do this with a facility unknown to our forefathers, but as physicians and surgeons, physiologists and pathologists, our desiderata in artistic reproduction are qualities of lucidity and truth of detail that appertain less to pictorial genius than to scientific intelligence. The more of æsthetic charm we can add without prejudice to essentials the better, but it will often occur that the features of an object which possess the greatest significance for men of science are precisely those which the painter might be inclined to disregard on principle, while, on the other hand, an amateur of fair artistic ability, working at his subject with the eye of the understanding, may provide us with a more useful presentation of anatomical or pathological facts than we could hope to gain from the pencil of a Botticelli. In view of this truth there can be no doubt that the establishment of special classes of "professional" drawing in our leading schools of medicine would confer an advantage of no small importance upon the progress of our craft, for until we take steps to educe and develop the artistic talent that exists within our own ranks our writers must inevitably be condemned to loss of time and patience in the attempt to secure truthful and presentable drawings for their publications, and the eyes of the reader will be offended or his understanding perplexed with ugly or inaccurate pictorial misrepresentations that only serve to deface the page or obscure the text. If this were carried into effect, the maker of books need go no farther than his class or school to find competent and educated draughtsmen; and the more highly gifted pupils would have acquired an accomplishment that might not only conduce to their usefulness, reputation, and profit, but add in no small degree to their capacity for wholesome enjoyment.

I may, in conclusion, venture to offer a few words with reference to the relations of the medical profession to art. There is perhaps no calling in which the average of general culture has been higher than in that to which we have the privilege to belong. It has given to science some of its most brilliant

lights, it includes many names famous in letters, and although its share in art is less prominent it has been neither small nor uninfluential. We have numbered in the past men like Camper, John and Charles Bell, Solly, and Joseph Maclise, who have left enduring marks of their pictorial skill, and we have still working in our midst some active and noteworthy contributors by pen and pencil to general art, as well as others who have devoted remarkable powers of draughtsmanship to the instruction of the junior members of their own profession. Nor is this all. It has been truly remarked by one who is in the best possible position to speak with authority on the point, that "almost every medical man of ordinary intelligence who achieves a fair share of success in his profession becomes a fine art collector of some sort, and has a hobby which, when you know him, and not until then, you are perhaps astonished to discover. . . . So surely as you find a successful doctor so certainly will you find an art treasure of some kind somewhere about his dwelling. If you haven't found it, you don't yet know your man."¹ Were we to attempt to enumerate those of our brethren who have made their homes beautiful by rare and well-selected works of art, the list of names would be almost as formidable as a 'Court Guide,' but there are some who have gone far beyond this modest use of taste and wealth, and have brought together collections that are well known and valued in the world of art. Belonging to the past are Dr. Mead, Mr. Joseph Henry Green, Dr. Sibson, and Mr. Shadford Walker, and in the present there are many more whose names are so far household words among us that I need not assume to myself the office of recorder. To one of this number, my friend and colleague Dr. J. F. Payne, I must dedicate my closing words in grateful acknowledgment of the generosity with which, in the course of the task I now bring to a termination, he has permitted me to take advantage of his library and learning to a degree only justifiable by the wide extent of both.

¹ 'Charley Kingston's Aunt,' by "Pen Oliver," Chapter viii.



THREE SURGICAL CASES.

FRACTURE OF THE SKULL; INTESTINAL OBSTRUCTION FROM COLOTOMY; AND EMPHYSEMA OF THE ABDOMINAL WALL.

BY CHARLES A. BALLANCE.

CASE 1.—*A case of compound comminuted fracture of the skull and laceration of the brain. Recovery.*

W. R. S—, æt. 26, a milkman, was brought to the West London Hospital in an unconscious state at 4.30 p.m. on January 3rd, 1886. He had been kicked a short time previously in the stable on the side of the head by a horse of whom he had charge and had not since been conscious. On admission, the following note was made :—The patient is quite unconscious. The pulse is 70, regular, and the respirations are 20 in the minute. The breathing is laboured and noisy. The pupils are equal and respond to light. The surface of the body is cool. The blow had been delivered on the right side of the head, and over the left half of the face, where it had come in contact with the ground, are numerous scratches and bruises. The right temporal region is contused and swollen, and at the anterior part is a wound two inches long, which leads down to exposed and fractured bone. The edges of the wound are much bruised and the scalp behind is stripped up

for some distance. The bone is exposed to a small extent. A portion, about three quarters of an inch in diameter, can be seen and felt to be broken up and depressed. The amount of depression varies; some of the fragments of bone appear to have been driven in to the extent of an inch. Protruding between the spicules and in the wound are small pieces of cerebral matter. Blood is oozing from the wound. The latter was washed out with some carbolic lotion and a temporary pad of iodoform gauze applied.

FIG. 1.

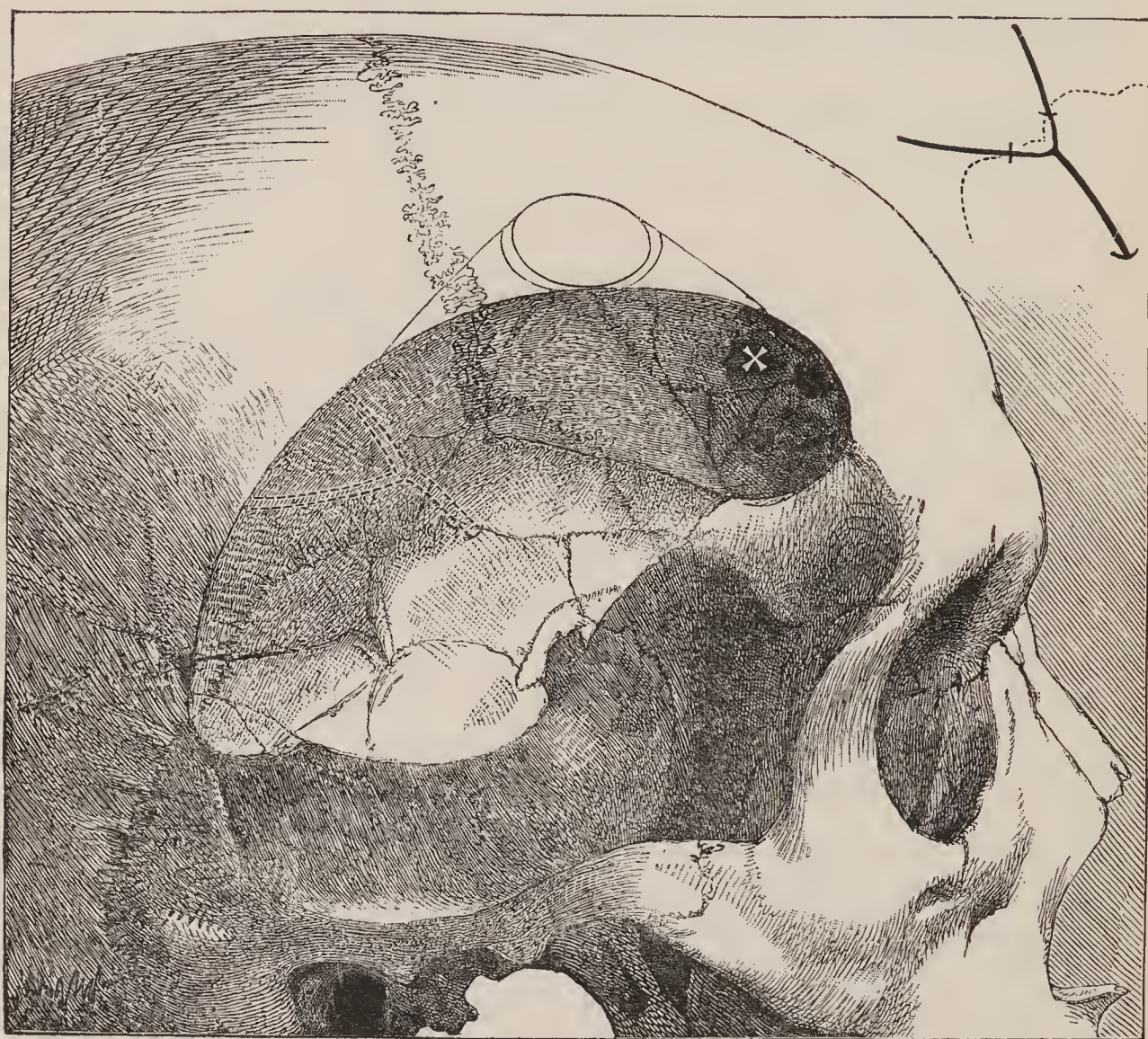


Diagram two thirds natural size, showing the extent of the depression in the temporal region. The normal sutures, the lines of fracture, and the position of the middle meningeal artery are marked. The artery below the point where it is indicated by a dotted line entered a canal in the bone. The small diagram in the upper right-hand corner is to make clear the points of breakage and ligature of the two main branches of this vessel. \times indicates about the point where the calkin or heel of the horseshoe drove a portion of skull into the brain. The semicircular line of fracture behind this point was evidently caused by the semicircular edge of the horseshoe. The bone along this line was so cleanly fractured that it looked as if it had been cut with a knife.

At 6.30 the writer saw the patient. Without delay operative measures were adopted. No anæsthetic was necessary at first, but during the progress of the operation, and as the compression on the brain was relieved, consciousness returned and chloroform was administered. When all the hair on the scalp and face had been completely shaved off and the skin repeatedly washed with soap, cleansed with ether, and soaked alternately with carbolic and sublimate solutions, the wound was enlarged by making a curved incision downwards and backwards as far as the pinna. The scalp could now be raised, revealing a pulpified condition of the soft parts in the temporal fossa as low as the zygoma, and also that a large saucer-like depression of the skull existed behind the small portion which was driven into the brain. The centre of this "saucer fracture" seemed to be depressed about three quarters of an inch. The hæmorrhage was free and continued during the removal of the remains of the temporal muscle. It could then be seen that the blood was issuing from beneath the skull and making its way out chiefly through the small aperture caused by the fragments of bone being pressed into the brain. These latter were then removed, but some difficulty was experienced on account of the overlapping edge of the frontal bone. An attempt was then made with elevator and forceps to raise the pieces of bone involved in the larger depression. At the circumference the inner table had been broken away more than the outer; the whole surface was smooth, the fractured portions of bone were jammed together, and the lines of fracture fitting all the more closely on account of the gradual depression would not admit between them any elevating instrument. The only point at which the forceps could be used, and that not effectually in consequence of the overhanging edge of the frontal bone, was at the anterior and upper part, where a small hole existed in the skull at the spot from which several spicules of bone had been removed from the brain. On taking hold here, so tightly were the comminuted parts held together that the only effect of the application of force with the intention of elevating one of the pieces was to produce a most alarming depression of the other fragments. The hæmorrhage continuing and the several attempts to raise the bone having failed, the skull was rapidly trephined in an advantageous position,

FIG. 2.

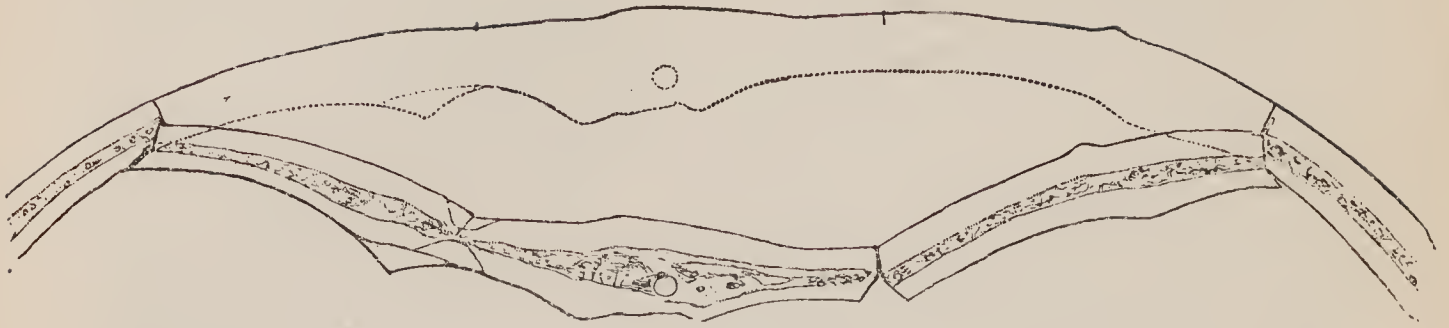


Diagram (natural size, and taken from the pieces of bone which were removed after they had been fitted together). The breaking away of the inner table to a greater extent than the outer and the close and even fitting of the fragments at the lines of fracture is represented. The depression partly caused the locking of the fragments, as it was not abrupt, and any attempt at elevation only jammed them more tightly together, hence the resort to the trephine. The foramen is for the middle meningeal artery.

the smallest instrument being employed. With the forceps numerous pieces of broken skull, some large and some small, could then with ease be removed. The two lowest pieces of bone were not loose like the rest, but were pulled away because it was thought that asepsis could with less difficulty be maintained in their absence. The main trunk of the middle meningeal artery was exposed for some distance as soon as one of these fragments through which it passed was avulsed. The two primary branches of the vessel were broken across and required ligaturing with catgut. The area of the dura mater now in view was considerable. In front a ragged opening through the membrane was visible, a little larger than a sixpence, and through this hole the brain surface, deeply lacerated and shreddy, was seen. A quantity of fluid blood occupied the interval between the brain and dura mater. After a further careful examination three more fine spicules of bone were removed from the brain; and an opening having been made through the dura mater at the most dependent spot a catgut drain was inserted. The skin wound was then united by silver sutures, and at its two extremities small pieces of drainage-tube were fixed. Iodoform powder and a dressing of sal alumbroth gauze and wool completed the operation; and the addition of a narrow elastic bandage ensured the constant approximation of the edges of the dressing to the skin. During the operation continuous irrigation was practised, and as the head of the patient was so placed that the left side lay

against the pillow, whilst the right or depressed side looked upwards, the wound was during the whole time full of anti-septic fluid, to which fact the subsequent aseptic progress of the case must mainly be attributed. On being returned to his bed in the ward, five grains of calomel were administered and two icebags were placed in contact with the head.

The following is a short abstract of the notes taken during convalescence.

January 4th.—The patient was very restless up to 4 a.m., throwing his arms about so that they had to be tied down. He kept on shouting out and complaining of pain in the head. Since 4 a.m. he has been sleeping quietly. Now (10 a.m.) he is quite conscious, has taken some milk, and has passed urine voluntarily. The pulse is 100, full and soft, and the temperature is 100° F. (The chart shows that *this was the only time subsequent to the operation that the temperature rose above 99° F.*)

5th, 10 a.m.—He has slept fairly well. The bowels have been freely open. The temperature and pulse are normal. He makes no complaint about his head and answers all questions without difficulty.

3 p.m.—The dressing was changed under sublimate irrigation. The pulse, which was 100 just before the dressing, dropped to 80 half an hour afterwards. A little headache, which had come on at 2 p.m., was cured by the change of the dressings. During the last twelve hours the man has taken a lot of milk. He now complains of hunger, and says that it is cruel to keep him without his dinner.

6th.—Sleeps well. Temperature and pulse normal.

7th.—No change to report.

8th.—Beef-tea allowed as well as milk. The patient is very hungry and declares he is quite well. The dressings were removed and the tubes shortened.

12th.—Bread and eggs added to the diet. The dressings were changed on this day.

15th.—Fresh dressings were applied and the stitches and tubes removed.

19th.—The wound is quite healed. Over a large area the pulsation of the brain can be seen and felt under the scalp. A thick pad of salicylic wool for protection is worn.

20th.—Full diet allowed.

February 1st.—Walking about ward quite well. A metal plate was ordered to fit over the part where the skull was deficient.

10th.—The patient left the hospital, being warned to wear constantly his metal shield and recommended to use a soft felt hat.

FIG. 3.



Portrait of patient eight months after injury (August, 1886). The hair, which had grown freely over the depressed scalp, was cut off for the purposes of this sketch.

The slight appearance of squint is incorrect, and was not present in the original drawing.

August 1st, 1886.—The patient is in perfect health, and has been so ever since he left the hospital. He has returned to

his occupation of milk carrier to one of the large West-End dairies and has charge as before of two horses. He is driving about all day. He wears his "protector" at night as well as in the day, in case (as he says) his wife should suddenly hit him.

The hair has grown over the depression on the side of the head. The opening in the skull is the same size as when the man left the hospital, but the bony outline is not so sharp. The scalp seems to have fallen in somewhat, making the valley and its boundaries more conspicuous. The area over which cerebral pulsation can be seen and felt remains unchanged. It is coextensive with the aperture in the skull.

Remarks.—The severity and extent of the injury from which this patient recovered are sufficient justification for its being placed on record. Not only was the recovery uninterrupted, rapid, and complete, but no event occurred during convalescence which was productive of any anxiety. The temperature at no time exceeded 100° F., and on one occasion alone rose to above 99° F. It is almost certain that if inflammatory changes with suppuration had taken place in the first few days after the operation the life of the patient would have been sacrificed. Conscious of this, every device was resorted to which experience had shown was likely to aid in the maintenance of the asepticity of the wound. The success attending the means employed warded off the immediate danger of suppurative meningitis, and also the more remote one of hernia cerebri. The conditions predisposing to the supervention of the latter affection were present, for though the opening in the skull was large the hole in the dura mater was moderate in size, with ragged margins and with a subjacent lacerated cerebral surface. It appears certain that hernia cerebri does not occur except in association with the suppurative or inflammatory process. It is in fact a question of sepsis or asepsis, and given a Listerian non-suppurating wound the chief and necessary factor in the production of this disease is absent and a great present and remote danger is averted. In this case sublimate irrigation was the antiseptic means relied upon, and for all head injuries it is the most efficient method at our disposal. In experiments upon the lower animals in which hair has always to be dealt with, the use of the perchloride

solution enables wounds to heal by the first intention, when the employment of carbolic solution fails to prevent suppurative action. The writer offers the case as a contribution to Listerian surgery.

In order to discover accurately what part of the skull had been removed, the pieces of bone which had been taken away were fitted together and held in their proper position upon the side of a skull. In this way a tracing was obtained. There were numerous small fragments of bone of which no account

FIG. 4.

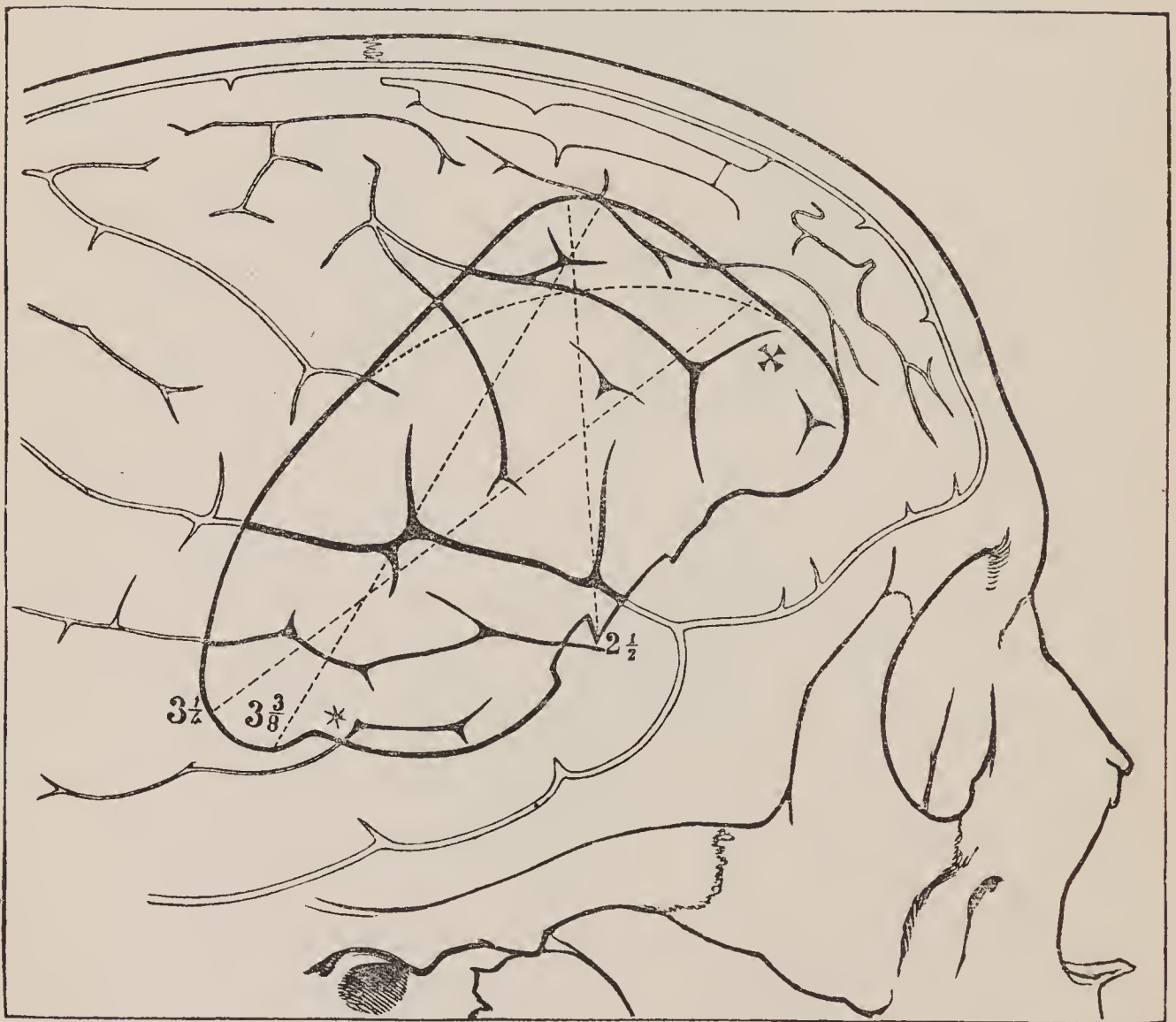


Diagram (two thirds natural size) to show the extent of brain, which can now be felt pulsating underneath the scalp. Part of the Sylvian fissure, and convolutions and sulci of the frontal, parietal, and temporo-sphenoidal lobes are exposed. The figures against the straight dotted lines indicate in inches the size of the opening. The curved dotted line separates the bone depressed by the horse-kick from that removed with the trephine. x shows about the spot where the calkin or heel of the horseshoe drove a portion of skull into the brain; * indicates the place where a counter-opening was made in the dura mater and a catgut drain inserted.

could be taken. These with the larger pieces are mounted in the St. Thomas's Hospital Museum. The hole in the skull measured in its longest diameter at the time of operation three and three eighths inches, and from above downwards two and a half inches. Last month (August, 1886) these dimensions were verified by following the outline of the opening with the finger, marking it with ink, and subsequently using the tape. At the present time the brain surface in contact with the scalp is very considerable, including parts of the parietal, frontal, and temporo-sphenoidal lobes (see diagram).

The hæmorrhage from the middle meningeal artery and the laceration of the dura mater and brain added much to the gravity of the case. The peculiar vein-like appearance of the vessel had not been before seen by the writer during life. It was easily secured with catgut. It is well to remember that the artery mostly runs for a short distance through a foramen in the apex of the great wing of the sphenoid and the anterior inferior angle of the parietal, which, in case of necessity, could easily be plugged. The loss of, and injury to, the cerebral matter has not in any way affected the patient's condition, possibly in consequence of the traumatism being in front of the motor area of the cortex. Sir Benjamin Brodie states that injury of the posterior part of the brain is much more fatal than damage to the frontal lobes, whilst Mr. Guthrie, in his work on '*Injuries of the Head*,' gives an exactly opposite opinion. The solution of this question presents many difficulties. Statistics are valueless, so much depending upon the management of, and the method employed in dealing with, each individual case. For his part the writer would prefer to have to treat a wound of the brain in the frontal region rather than one on the side or back. On the diagram the place is marked where it is probable that the calkin of the horseshoe had come in contact with the skull, and splintered and driven a section of it into the brain. Immediately behind this point a clean fracture, almost as if the bone had been cut with a knife, extends for some distance along a semicircular line, which doubtless corresponds with the semicircular outline of the horse-shoe in front of the calkin.

The return of consciousness, coinciding in point of time with the elevation of the depressed bone, notwithstanding

the damage to the cerebrum, was one of the most interesting features in the case. This happened in even a more striking way about a year ago, whilst the writer was operating on a child of four years for depressed fracture of the left frontal bone, and, as was discovered subsequently, extensive laceration of the superior frontal convolution. When the operation commenced the child was almost dead, the pulse could not be felt at the wrist, and the last gasping respirations, at long intervals, were taking place. On incising the dura mater a large quantity of blood gushed out. In a few moments the pulse and breathing had become natural, the child opened its eyes, and cried for its mother. The fracture extended into the nasal cavity, and, unfortunately, the attempt to make this space aseptic was neglected, and the little patient died of suppurative meningitis on the seventh day.

FIG. 5.

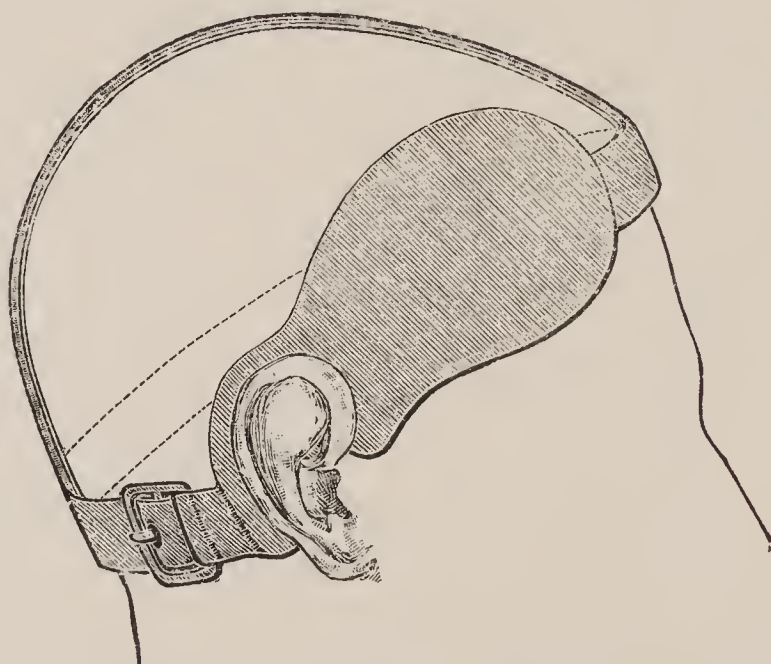


Diagram to show the apparatus which was devised to protect the brain from injury where the skull is deficient.

The plate which was devised to protect the brain from violence whilst the man is following the usual business of his life, was constructed of thick zinc covered with thin leather and hollowed out behind so as to fit over and rest upon the pinna. It is a little larger than the hole in the skull, so that it fits firmly against the bony boundary of the opening. The "protector" is fixed by a band which passes along the forehead at the margin of the hair and round the occiput; and in

order to prevent the front part of the plate from sliding downwards and forwards, an antero-posterior band connects over the vertex the occipital and frontal sections of the horizontal one. This apparatus has now been worn for eight months and answers admirably.

During the operation all the loose pieces of bone were removed; but this was not all. Two large fragments at the lowest part of the depression which were not loose were first lifted into their normal position, and then, contrary to the ordinary routine of practice, pulled away. On doing so several small spicules of bone, loose and pointing inwards, were removed, hence justifying the bolder procedure. The usual plan of elevating large fragments of partially detached bone and leaving them *in situ* is fraught in many instances with great danger:

1st. Because when there is partially detached bone about, it is much less easy to be sure of making the wound aseptic than when all loose bone is cleared away. And the penalty of suppuration or sepsis is generally death.

2ndly. Because small bits of bone along the lines of fracture of larger fragments are often splintered off, altered in position, and pressing upon the dura mater in unexpected places. Hence the wisdom of going counter to the established rule, in the majority of cases at all events, and adopting the more thorough course of getting rid of all broken fragments, whether wholly or only partially detached.

3rdly. The advantage supposed to be derived from not removing an only partially loose fragment, in the shape of a diminution in the size of the permanent opening in the calvarium, is not commensurate with the risk which is run. From the practical point of view a small increase in the dimensions of the aperture in the skull is not important. The wearing of a correspondingly larger "protector" or shield is of comparatively trivial moment.

The continuous hæmorrhage, which could not be controlled, and more than that, the difficulty and failure incurred, as has before been described, in the attempt to raise the depressed portions of bone, led the writer to make a small trephine hole. In this way the case was transformed from one of great difficulty and danger into a straightforward one, in which the

parts were all under command and in which all further manipulations could be and were accomplished with ease, simplicity, and rapidity. Time was in this manner gained, and time is always an important factor to bear in mind in dangerous surgical procedures. Moreover, when the trephine was taken up the operator had almost without it come to an *impasse*. He is, however, free to admit that possibly with more experience the enlargement of the hole in the skull might not have been necessary. Now, eight months after the operation, the patient is certainly in no worse state than if trephining had not been necessary. In either case a large hole in the skull could not have been avoided, and the employment of the trephine, though it slightly increased the area of brain surface uncovered, finds abundant justification in the material aid which it gave to the safe and expeditious completion of the operation. The writer would not hesitate if such a case were again to occur to him, and he thinks that he could not do better than carry out similar measures to those which are here described.

CASE 2.—*A case of colotomy in which the operation was the immediate cause of complete intestinal obstruction.*

W. T. S—, æt. 34, a bank clerk, was admitted into St. Thomas's Home on May 15th, 1886, complaining of cough, expectoration, and occasional diarrhœa. The complexion was fair, the cheeks were rather sunken, and the general aspect suggested recent loss of flesh and strength. He had always been subject to colds, but the present cough began fifteen months ago. It was at first dry, but latterly has been accompanied with a noticeable amount of expectoration. About three months since, after straining at the closet, he felt something "give way" or "come down," and difficulty was experienced subsequently with the bowels. The diameter of the solid motions diminished very much, and after and during walking diarrhœa of an uncontrollable character was apt to come on, though the amount passed at a time was extremely small. These diarrhœal attacks were accompanied by great pain of a griping character in the lower part of the pelvis. Both pain and diarrhœa were usually relieved by the recumbent position. On three occasions streaks of blood had been seen on the

motions. There was no history of gonorrhœa or syphilis. His father had died suddenly from some unknown cause when the patient was a boy. His mother had died from cancer of the uterus. He never had a brother. Four sisters are alive and well, but a half-sister died of phthisis.

On admission, the expectoration was muco-purulent; it did not contain any tubercle bacilli. Dr. Acland made the following note: *Right apex*, comparative dulness; vocal resonance increased; respiration prolonged; no crepitation. *Left apex*, same as right; posteriorly vocal resonance both to speaking and whispering much increased.

The abdominal wall was thin. In the left iliac fossa a hard nodulated and elongated mass could be felt, and another smaller lump of the same character was discovered just above the umbilicus. These tumours on palpation were not tender, and gave the impression of being caused by fæcal accumulation; an impression which was strengthened by the fact that the outline of a distended transverse colon could easily be made out. The rectal examination was conducted with difficulty on account of the pain which it produced. An inch and a half above the internal sphincter the finger impinged upon parts which had a great resemblance to the os uteri at the upper part of the vagina. The opening of the "os" was far too small to admit the top of the finger. Between the "cervix" and the rectal wall the finger could be carried up for from a half to three quarters of an inch, which gave the idea of an intussusception. Above these parts was a hard, movable, solid tumour about the size of a tamarind orange. A No. 10 gum elastic bougie was passed into the "os" and through the stricture. The finger used for the examination on withdrawal was not stained with blood. The patient said that during the preceding ten days the griping pains had been very severe though he had been in bed, the bowels had acted from six to eight times in the twenty-four hours, and that much mucus had passed, but very little feculent matter.

Some cough medicine and morphia suppositories were ordered.

During the next fortnight the patient kept his bed, and his condition gradually became more serious. The pain required the constant use of morphia; the appetite was very poor; the

temperature varied from normal in the morning to 99° or 100° F. in the evening; the pulse varied from 90 to 100 in the minute; the cough and expectoration continued as troublesome; the bowels acted from two to ten times in the twenty-four hours, only a little mucus tinged with fæcal matter coming away at each evacuation with much straining and pain; the masses felt in the abdomen varied their position from day to day, and though there was no general distension of the belly or sickness yet the outline of the great gut was more evident.

On June 1st a consultation on the case took place between Drs. Bristowe and Acland, Mr. Pitts, and the writer. The patient was anæsthetised so that a more satisfactory rectal examination might be made. The diagnosis was involved in difficulties and could not be absolutely determined; but it was resolved to relieve the impending intestinal obstruction by colotomy, which was to be done without delay. Dr. Bristowe did not think that any very active lung mischief was going on.

Operation, June 3rd.—The usual oblique incision was made in the loin with antiseptic precautions. It was about three inches long. The abdominal wall was very thin and the bowel distended, and so after only a few touches with the knife the gut appeared in the wound. The outer edge of the quadratus lumborum was not incised. A loop of bowel was drawn out of the wound and a thick strand of silk and an india-rubber tube, half an inch in diameter, passed through the peritoneal fold attached to the gut. The latter was inserted so as to prevent the bowel passing back again into the wound, and with the view of providing a smooth even surface for the gut to rest upon without kinking or constriction. The silk ligature was passed with the idea of using it a few days later to constrict and completely close the distal end of the loop and thus prevent the passage of any fæcal matter into the rectum.

For twenty-four hours the state of the patient was satisfactory, and the pelvic and griping pains were absent; but on the second evening he was decidedly more feeble, the temperature rose to 101° F., the pulse to 120, the cough was troublesome, and he said that the wounded side was very sore. No sickness had occurred, and though the outline of the large intestine was, if possible, more distinct no general distension or tenderness of the belly existed. Small quantities of fluid nourish-

ment and stimulants were well borne. The tongue was moist but covered with fur.

The following afternoon (*i. e.* the third afternoon after the operation), as there was no improvement in the state of the patient, the antiseptic dressing was removed and the loop of intestine incised at its centre for about half its circumference. Nothing further was attempted as it was thought best, on account of the precarious state of the patient, to defer the closure of the distal end and to interfere as little as possible with the gut. A quantity of gas and a little feculent matter escaped. During the following night and day no large evacuation of fæces took place as was expected, and the distension of the large gut was not relieved. The patient grew worse, his tongue was getting dry, and the pulse and temperature had risen respectively to 120 and 102° F. Vomiting, pain, and distension were noted as absent. Closed forceps were introduced into the opening in the bowel and allowed to find their way into the gut within the belly and then opened. Fæces escaped, but not in large quantity, but it was hoped that a free evacuation would take place during the night.

The following day (the fifth from the operation) no result having followed the introduction of the forceps on the previous afternoon, they were again introduced, as was also the finger. Some more feculent matter came away, but its exit seemed to be retarded as soon as the forceps or finger was withdrawn; however, a little did continue to come, and it was hoped a larger quantity would follow. The abdomen appeared to be a little fuller than the day before, the general feebleness had increased, and for the first time nausea was complained of. No change occurred during the next few hours, but at 1 a.m. (June 9th) the patient suddenly sat up in bed, vomited a large quantity of feculent matter, and fell back dead.

Post-mortem examination.—The wound is nearly healed. There is no trace of peritonitis. The large intestine from the cæcum to the wound is enormously distended with hard and soft fæces. The sigmoid flexure is partly empty. At the mouth of the wound the proximal portion of the colon is greatly constricted, twisted about half a turn or more, and stretched. The constriction appears to be due to the smallness of the wound in the abdominal wall, the distension of

FIG. 6.

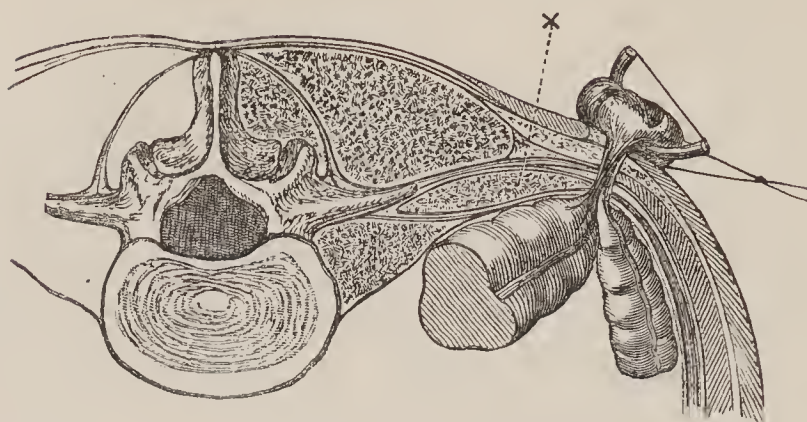


Diagram to illustrate some of the causes which led to the operation being followed by complete intestinal obstruction. × *Quadratus lumborum*.

the gut, the thinness of the abdominal wall, the sharp outer edge of the quadratus lumborum, and the angle at which the bowel leaves the cavity of the belly. The twist is more than could be accounted for by the fact that the loop of gut is obliged to lie in the long axis of the wound, which is of course nearly transverse to the direction of the descending colon within the abdominal cavity. The rectum is involved in a new growth about three inches from the anus. The tumour is very hard, freely movable, and about the size of a tamarind orange. Centrally, there is a passage through the mass about the size of a crowquill. The invagination is caused by a folding of the rectal wall, possibly because of the dropping of the tumour on account of its weight. On a longitudinal section all the coats of the bowel are seen to be involved, and the tumour cuts and looks like scirrhus. Along the track of the stricture the mucous coat exhibits some points of erosion. No pelvic or abdominal glands are involved. On opening the chest old pleuritic adhesions about the upper part of both lungs are to be seen. In the lung-substance at the upper part on both sides cicatrices are visible, as are also small white patches about the size of a split pea scattered here and there, which have the appearance of new growth. The bronchial tubes are in a state of catarrhal inflammation. The subsequent microscopical examination confirmed the opinion that the rectal tumour was a carcinoma, but the white patches in the lungs, which were thought at the post-mortem to be secondary deposits, turned out to be old tubercular disease consisting in most part of fibroid tissue. Sections

were stained for the tubercle bacillus, but the specific bacilli were not present.

Remarks.—The diagnosis presented some points of difficulty, and the true nature of the case was not entirely cleared up until after the post-mortem examination. The tumour in the rectum might be, and probably was, a new growth, but yet there were so many other facts which had to be considered that no one was willing to express a very confident opinion. The long history of the lung mischief and the present condition of the chest rather indicated the presence of tubercle. It would appear, moreover, that it is very unusual to meet with a patient in whom active malignant and tubercular disease are progressing side by side. The possibility of secondary deposit in the lungs was not lost sight of, and due weight was given to the negative result which had attended the attempts to find tubercle bacilli in the sputum. Two hypotheses were open for adoption. Was the patient suffering from phthisis, and was the rectal tumour an intussusception? Or had one to deal with a case of malignant disease of the rectum and lungs?

The most urgent symptom, which it was imperative to take immediate steps to relieve, was the impending complete obstruction of the bowels. An opening in the left lumbar region was decided upon. The condition of the chest did not allow of any more radical measure being entertained. The rectal tumour, however, was particularly favorably situated for excision. It was movable and well within reach, and the post-mortem subsequently showed that no secondary lymphatic infection had taken place. Last year the writer witnessed Prof. Volkmann excise seven successive cases of cancer of the rectum. The operations were performed with the most marvellous rapidity and skill; and Prof. Volkmann said in the clinic that in his practice excision of the rectum, for cancer, was more favorable as regards prognosis than the excision of any other part of the body for the same disease. He had had two patients in whom no recurrence had taken place after fourteen and nine years respectively.

The question of the growth in the same individual and at the same time of tubercle and cancer, is a very interesting one. Some years ago, the writer saw a man who was under the care of the late Dr. Murchison. The diagnosis was tuber-

cular peritonitis and phthisis. There were night sweats and well-marked hectic. At the post-mortem the disease of the peritoneum turned out to be cancer, and the disease of the lung was put down as tubercular. The lung did not undergo any microscopical examination, and in the light of present experience, that the disease was actively tubercular, appears highly improbable. Cases of this sort are helpful in the elucidation of the intimate pathology of cancer. Supposing that future researches demonstrate the parasitic nature of this disease, and show that heredity is only a question of nutrient soil, then the explanation of the observation that cancer and tubercle do not flourish together in the same organism will be at hand, for different micro-organisms often require, not the same, but diverse soils for their growth and development, and not seldom it happens that when two or more species are planted together the law of natural selection comes in, and the most vigorous grows and develops, whilst the feebler rootling remains inert or succumbs.

The result of the operation was disastrous to the patient; instead of relieving the obstruction the latter became complete. This was due to a combination of causes :

1. The shortness and rapid healing of the wound which left only a small and narrow passage for the bowel to rest in.

2. The distension and consequent paralysis of the gut. It has often been observed in practice that a stricture of the intestine which has produced complete obstruction becomes passable again by the contents of the bowel as soon as the distension of the gut behind it has been relieved. In this case after the operation the stricture was situated at the chink in the abdominal parietes through which the colon had been drawn. The distension on the proximal side only increased the obstruction by accentuating the twist and bend in the gut, and not being relieved was the essential factor in the death of the patient.

3. The thinness of the abdominal wall, in consequence of which the bowel was pressed upon by an edge instead of a surface.

4. The sharp outer border of the quadratus lumborum.

5. The distinct angle in the intestine at the point where it left the belly.

6. The twisting of the gut at the point of emergence.

7. The extreme ease with which the operation was done, which interfered with the usual free division of parts.

8. If less time had been allowed for the formation of adhesions, and more boldness exhibited in the use of the finger or by passing a tube into the colon, the fatal termination might have been delayed.

It is fair to add also that if an ordinary colotomy had been performed a free evacuation of the bowels would probably have followed. No doubt the nipping of the intestine was in great measure produced by the pulling of a loop of it out through the wound; and the twist was also dependent upon this procedure.

The advantages anticipated from having a loop of colon outside the belly were great. It was intended as soon as possible to wash out the sigmoid flexure and rectum with some mild antiseptic, such as boracic acid solution, and by ligature or otherwise to prevent the passage of any fæcal matter subsequently into the rectum. In this way all irritation caused by the presence of fæces in contact with the new growth would have been abolished, and providing that the patient's state improved, a second operation for the removal of the tumour would have been undertaken under the most advantageous circumstances.

The lesson to be learnt from this case is not, the writer thinks, that it would be advisable to abandon this method of dealing with the large bowel, but that a bolder and earlier attempt ought to be made to obtain a free evacuation of fæces, which attempt should be continued until success is assured, free from the dread of the breaking down of adhesions which are in reality rapidly and firmly formed.

CASE 3.—*A case of perforating wound of the abdomen with prolapse of the omentum and emphysema of the abdominal wall.*

E. K—, a boy æt. 7, was admitted under the writer's care into the West London Hospital on June 2nd, 1886, at 11 p.m. The history of the injury was as follows: About 9 p.m., the night being dark, the boy climbed on to the top of a low

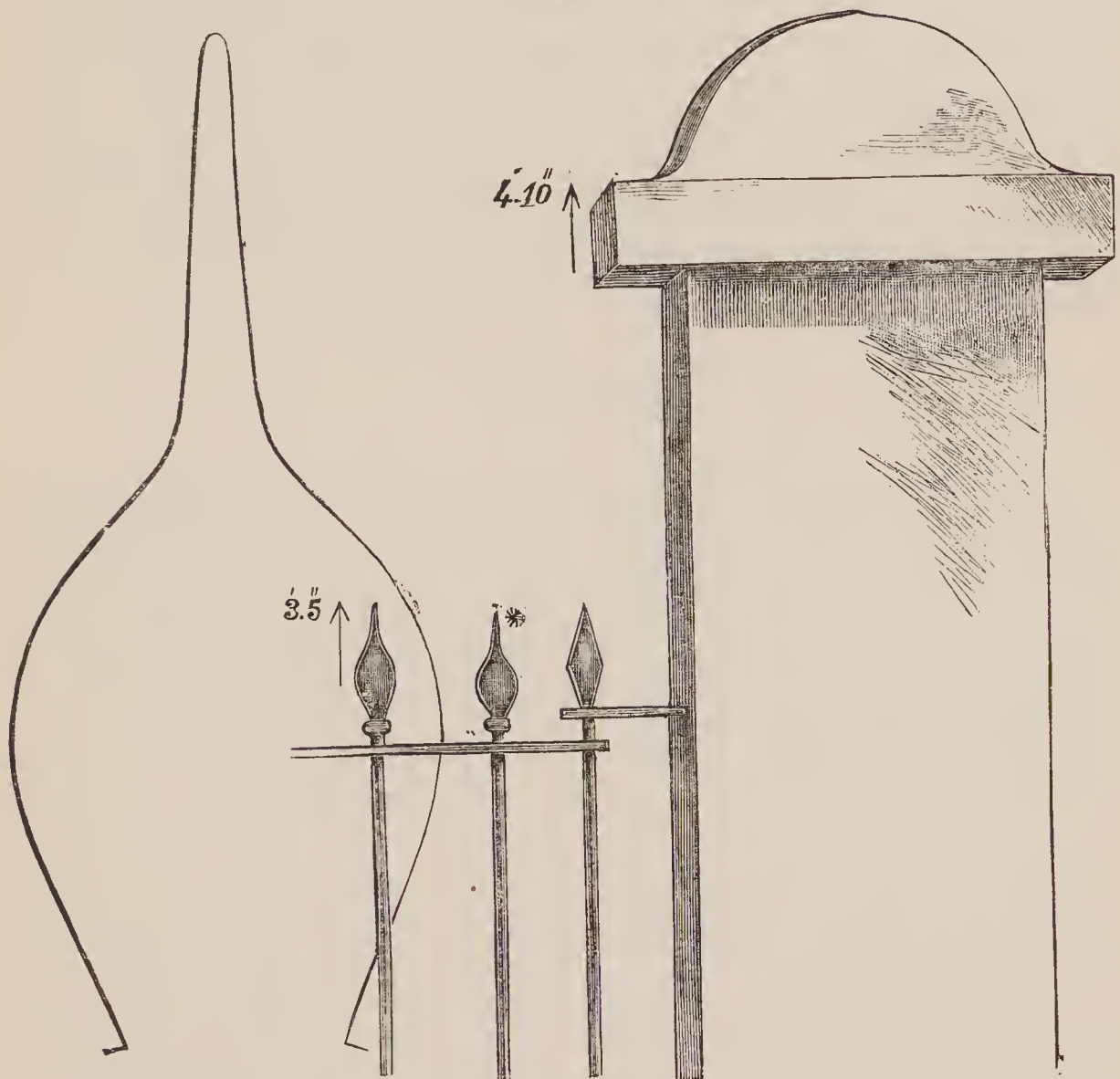
garden wall and from thence to the pillar at the end of it and then either slipped or jumped off. During his descent he came in contact with the summit of an iron railing one of the spikes of which perforated his clothes and abdominal wall. With his feet off the ground, and unable to extricate himself, he remained impaled for a time, which different individuals estimated from one and a half to twenty minutes, and was finally lifted off by a boy attracted to the spot by his cries.

On admission, the boy was a good deal collapsed. The temperature was 97° F. and the pulse 100. A wound was found about three quarters of an inch long, with bruised margins and dirty, just below the level of the umbilicus and a quarter of an inch external to the left linea semilunaris. Nearly the whole of the left half of the belly wall was emphysematous. No fæcal odour could be detected. There was some dulness apparently in the left loin. A temporary iodoform dressing was applied.

At 12.30 a.m., *i. e.* an hour and a half after admission, the writer saw the patient. His state was unaltered. The legs were drawn up. Some tenderness existed, but no distension of the belly. The boy had not been sick and had not passed anything by the bowel. The urine which had been drawn off was clear. There was no smell from the wound. Under chloroform and with antiseptic precautions the wound was enlarged superficially after the surrounding skin had been thoroughly cleansed. At once some omentum came into view, much bruised, and with specks of dirt upon it. The track which the spike had taken could now be seen to be very oblique, the direction being upwards, outwards, and backwards. An incision was then made along the left linea semilunaris for about three inches, and when the abdominal cavity had been opened the wound was made continuous with the hole along which the spike had travelled by a short transverse incision. The track which the spike had taken was contused and filled with bruised omentum and specks of dirt. The omentum just within the abdominal cavity in the immediate neighbourhood of the wound was in a like state. The damaged omentum was ligatured and cut away, and no effort was spared to make the track of the spike aseptic with sublimate solution. No offensive odour came from the wound. The intestine was

carefully gone over, especially those coils which lay close to the wound. Nothing could be found except a red spot upon a loop of small intestine. The bowel at this point had no doubt been contused by the point of the spike, which had been

FIG. 7.



To the right is the pillar off which the boy fell. It is 4 feet 10 inches high at the place where the boy was standing. * indicates the spike on which he was impaled. Its point is 3 feet 5 inches from the ground. The outline figure to the left shows the exact size of the aforesaid spike. It has sharp edges, but the narrow part is rounded off at its extremity. "The bay wha took Edgrar aff the raling thinks he was an thear 1 an $\frac{1}{2}$ minte, he scremed and strugled dredfull, his feet was aff the graund. Hith af raling about 3 fut 6 ar 9 in., he fell aff the *Pillar* an to the *Sacan Spicke*." (Abstract of letter to the writer from the father of the patient.)

prevented from doing further damage by the thick pad of omentum which intervened. The belly was then carefully sponged out, the wound sewn up in the usual manner, and a gauze dressing put on. For twenty-four hours ice only was

allowed by the mouth, and the child was kept under the influence of opium. The day after the operation a little vomiting and diarrhœa occurred, due, it was thought, to the contusion of the intestine and the resulting slight local enteritis. The stools did not contain any blood. With this exception the notes do not record anything of importance. The emphysema of the abdominal wall had quite disappeared at the first dressing, which took place a few days after the operation. The temperature remained normal throughout. A little superficial suppuration occurred where the skin was bruised. The wound by June 20th had quite healed, and on June 25th the boy left the hospital.

Remarks.

I. Emphysema of the abdominal wall is very rarely seen, and is scarcely, if at all, touched upon in text-books of surgery. It is mentioned by some authors as pathognomonic of wound of the gut, but by none is it included amongst the possible symptoms which may attend a simple penetrating wound with prolapse of the omentum. When the writer first saw the above case it was introduced to him as one in which the intestine must have been ruptured. No offensive odour, however, could be detected either before or after the enlargement of the wound, and this fact made such a view untenable. The diagnosis was further strengthened by the examination of the small and large intestine, which was thoroughly carried out, and which did not reveal a solution of continuity at any point. Several causes probably combined to produce the symptom:

1. The valvular and very oblique nature of the wound.
2. The struggles of the boy during the time that the spike rested in the track which it had made for itself through the abdominal wall. These were favorable, and probably necessary for the process of sucking air into the wound through the valvular external opening.
3. The patency of the wound, for its sides could not fall together. In the first place they were separated for some time by the spike, and secondly, by the prolapsed omentum.
4. The mobility of the abdominal wall in children.

There does not seem to be any need for further explanation of the mechanism whereby emphysema occurred. Yet so rarely is the symptom met with under like circumstances that the writer, after detailing the facts to two surgical friends the day following the operation, was assured, in the most comforting way, that "emphysema could not be caused by simple penetrating wound, that a rent must have been made in the intestinal wall, and that the patient would certainly die in a few days of peritonitis."

II. The rules which are ordinarily given for the treatment of punctured and punctured lacerated wounds of the abdominal wall are far less energetic than they ought to be. It is tritely stated that if bleeding is taking place the wound must be enlarged and the vessel secured, or else hæmorrhagic extravasation will occur; and that if suppuration supervenes the pus must be let out at the earliest moment. No instructions are to be found for opening up a punctured wound from which there is no bleeding; and the surgeon not recognising the importance of anticipating and preventing inflammation by asepticing the wound along its whole length and to its deepest extremity, must be supposed to adopt, in default of further recommendations to action, a *laissez-faire* policy until pus forms.

It would be well if in punctured wounds of the abdomen the same rule applied as is in force for punctured fractures of the skull. In other words, in all cases "explore." If the peritoneal cavity has been opened, and this vital point can often only be set at rest by an enlargement of the wound, the pathway of safety is most likely to be found in a complete antiseptic exploration. Supposing the peritoneal cavity to be intact, it is still, in the writer's opinion, advisable to view the deepest part of the wound so that antiseptic measures may be efficiently carried out. In this manner the patient may not seldom be saved from dangerous and widespread suppuration extending along the fascial planes, and which, if not fatal itself, may yet be the herald of a disastrous termination by the spread of the inflammation by continuity of tissue to the peritoneum.

TWO CASES
OF
NERVE STRETCHING FOR NEURALGIA
OF THE INFERIOR DENTAL NERVE.

BY BERNARD PITTS.

THE results after operative interference in cases of persistent neuralgia are so uncertain that no apology is necessary for recording these cases. About two years have elapsed in each instance since operation, and it would appear necessary to allow at least this interval to take place before coming to any conclusion as to how far permanent benefit may be relied on.

The first case was that of a coach-builder, æt. 61, who was brought to me by Dr. Leach, of Newton, Dorset, in August, 1884. For the last nine years he had been subject to frequent attacks of violent pain which generally commenced at the angle of the lower jaw on the right side. Occasionally the pain would extend to the upper jaw, and sometimes along the tongue; the attacks were of a very severe character, causing lachrymation and the usual phenomena of epileptiform neuralgia. During all these years the patient had never been quite free from these attacks, but occasionally for short periods they would be much less severe. The teeth of both lower and

upper jaws on the right side had all been removed at different times, and long trial of the various drugs and local applications made without benefit. The patient's strength was much exhausted, and he had to resort to large subcutaneous injections of morphia. Dr. Leach had consequently advised him to have an operation performed on the nerve as the only chance of rendering life tolerable. On August 26th I trephined the canal at the point from which the pain seemed to radiate, and having divided the nerve I introduced a red-hot wire into the canal so as to destroy the nerve for some distance in both directions. During the next twenty-four hours there was no pain but afterwards it gradually returned in all its old force.

On September 4th I obtained the man's consent to a further operation, and made a vertical incision within the mouth, along the inner border of the ascending ramus of the jaw, and after separating the soft parts from the bone by an elevator, and recognising the position of the entrance of the canal by the finger, I pulled the nerve forwards on a blunt hook and stretched it, the nerve and artery were thus pulled out of the canal and very free bleeding ensued, which was arrested by clamp forceps. At the end of twenty-four hours the forceps were removed and there was no recurrence of the hæmorrhage. The patient left for home on September 11th, having remained entirely free from pain since the second operation. Since that time he has been under observation by Dr. Leach, and the following extracts from his letters sum up the after history :

October 4th, 1884.—“He has thoroughly lost his pain and there seems to be no attempt at its return. He speaks of a peculiar running sensation from the terminal branches of the nerve at the middle line of the chin to the place where you trephined the jaw, but no pain, in fact, he is rather amused than otherwise, and every time apostrophizes the nerve with, “Ah ! you are beaten now.” He is regaining his flesh and is getting much stronger.”

March 13th, 1886.—Dr. Leach again writes, “For fifteen months after the operation he had no symptom of relapse, but then he had an attack which lasted about a week but was controllable by small hypodermic doses of morphia, and he was again free for two months when he had a similar attack but

rather more severe. The attacks are of exactly the same character as they were before the operation, and he refers the origin of the pain to the site of the first operation when you trephined the jaw. Every night he feels it just a little there."

August 22nd, 1886.—"He has had two severe attacks, I am sorry to say, since last March; one only a fortnight ago. They each lasted eight or ten days, which favorably compares with the duration of the attacks before the operation. Between the attacks there is very little pain, and altogether he is much better than before the operation."

CASE 2.—A man, æt. 44, a musician, came under my care in St. Thomas's Hospital on December 24th, 1884. His illness commenced four years before, when he was suddenly attacked with severe intermittent pain in the left side of the lower jaw. Since then he had never been free from pain for more than a month at a time, and for the last two years the pain had been intolerable, and the only method of relief that he found of any avail was constant friction. Last February he had successive teeth taken out; the teeth were sound and no benefit resulted. He had been under the care of Mr. Sidney Harvey, of Kensington, who had tried various drugs with varying but never lasting benefit.

The patient had a worn anxious expression and was almost unable to answer questions, but was constantly engaged in rubbing the region supplied by the left inferior dental nerve, all his whiskers on that side having been worn away by the friction.

On December 25th, the day after his admission into the hospital, I found him in such agony that I considered it would be a charity to operate at once, and, guided by the experience of the first case, I stretched his nerve from within the mouth, just at the entrance into the bony canal; the nerve was not torn, and there was no arterial bleeding.

January 5th, 1885.—There has been no return of the neuralgic pain since the operation. There is some suppuration about the wound, and the temperature has risen occasionally in the evening.

10th.—The patient's aspect entirely changed. He has lost

the worn look of intense suffering, and he is gaining flesh rapidly. The inflammatory condition of throat has almost subsided, and the expectoration of pus much diminished, and he is able to leave hospital.

For some time after he had difficulty in getting his mouth wide open, and several months later had a residual abscess in the neck; he was, however, in good general health and quite a different looking man, and able to follow his occupation.

After a lapse of fourteen months he had a slight twinge of pain in the old spot, which he attributed to catching cold, and he has since had pain from time to time, but the attacks are much less intense than of old, and he is able to keep to his employment.

Remarks.—For more than a year after operation both these cases were free from the slightest return of pain, and one was beginning to hope that the cure would be permanent.

Fortunately the relapses in both cases have been mild, and the patients are now (at the end of their second year) in a much better state than before operation, and very grateful for what has been done.

In Case 1 the jaw was first trephined and the nerve divided without benefit, and the justification must be want of experience, for one had not then realised the ease and certainty with which the nerve can be laid hold of at its entrance into the canal.

Nerve stretching seems a much more desirable procedure than neurectomy, more particularly in the case of the inferior dental nerve, where excision of any large portion of the nerve is almost impracticable.

The results to be expected by either nerve stretching or by neurectomy have yet to be made out by more extended observation and by following the after-histories for long periods. It would seem, moreover, from recorded cases that relapse is likely to occur either after a few months or in the second year. There would seem therefore to be very strong reason for always performing nerve stretching as a first measure, since in case of relapse the operation can either be repeated or neurectomy performed.

In Case 1, in consequence of the previous neurectomy, the

nerve was dragged out of the canal at the second operation, and one would now be much puzzled what to do in case the patient begged for further operative treatment.

In Case 2, if the attacks were to increase in intensity and necessity arose, one could try stretching again with a fair prospect of success.

To stretch the inferior dental nerve one is advised not to take up the artery with the nerve. By passing the needle close to the bone it is easy to be certain of getting hold of the nerve, but not so easy to be sure that you have not the artery as well. The amount of pull on the needle need not be very great, and the nerve should be stretched by a number of small efforts rather than by one jerk.

In Case 1, when the artery was torn the hæmorrhage was very free, but no difficulty was experienced in clamping the vessel.

Both patients suffered from some inflammatory swelling of the neck, but neither were in any sense seriously ill after operation. Several months elapsed before they recovered complete mobility of the jaw. That there should be some inflammatory swelling is to be expected, since the soft parts are of necessity bruised in lifting them off the bone, and a cavity is made which it is difficult to drain.

NEURECTOMY

OF THE

SECOND DIVISION OF THE FIFTH NERVE.

By H. H. CLUTTON.

I AM indebted to Dr. Chavasse's paper on this subject in the sixty-seventh volume of the 'Medico-Chirurgical Transactions' for the determination to try this method of treatment for two cases of intractable neuralgia of the second division of the fifth nerve. For some unexplained reason the operation proposed by Carnochan had not been tried in this country, although his cases were published in the 'American Journal of Medical Science' for 1858, vol. xxxv, till Dr. Chavasse drew attention to the subject in the manner indicated above. The advantages claimed for this operation are that the whole trunk of the second division of the fifth with the spheno-palatine ganglion can be removed as far back as the point at which it emerges from the foramen rotundum, and that such operations as resection of the upper jaw in order to accomplish the same result need not be performed. The simple division of the nerve by Langenbeck's method cannot of course be compared with it, as the nerve is not removed. The only operation at present practised which possesses advantages at all comparable to this is the one advocated by Professors Lücke and Lossen. In their methods, by dividing the zygomatic arch, the spheno-maxillary fossa is exposed, and the nerve removed as it emerges from the foramen rotundum. At first sight this

would seem to be a simpler proceeding than the one I am about to advocate. But the coronoid process and temporal muscle are very much in the way, and even when the muscle is drawn on one side the foramen is still hidden behind the base of the pterygoid process. The anterior part of the nerve, moreover, in the infra-orbital canal is not necessarily removed ; and therefore there is some chance of a communication being re-established. Carnochan's operation, on the other hand, starting from the front of the face, gives you the nerve itself as the guide to the further steps of the operation, and the whole trunk, from the foramen rotundum to its peripheral subdivision in the cheek, is excised. An incision is made just below the infra-orbital foramen, and as soon as the nerve is found the antrum is opened with a small trephine. Then the infra-orbital canal is broken through with pliers and chisel till the nerve is free and hanging out through the wound. The posterior wall of the antrum is perforated with a still smaller trephine, and the nerve then used as a guide to find the foramen rotundum. If the operation has been thus far safely conducted there is no difficulty in dividing the nerve with a pair of scissors as it emerges from the skull, *i. e.* beyond the spheno-palatine ganglion.

Carnochan in his original paper, 1858, says : "I believe that, in such aggravated cases of neuralgia, the key of the operation is *the removal of the ganglion of Meckel, or its insulation from the encephalon*" (the italics are his). I am not at all sure that this is the true explanation of the success of this treatment, for physiologists tell us that this ganglion has little or nothing to do with sensation. But the removal of the trunk of the nerve beyond the origin of the posterior dental nerves may, as Dr. Chavasse has pointed out, be of the utmost importance. Most cases of facial neuralgia seem to start from the teeth, for we are all agreed in directing our attention to these parts of the jaw if they have not already been removed. This general consensus of opinion can only arise from a belief that the teeth are the primary cause of most of these intractable cases. The removal of the trunk of the nerve beyond Meckel's ganglion ensures the disconnection of the posterior dental nerves from the brain and may be the truer explanation of the success of the operation. That is to

say, the complete isolation of the posterior dental nerve may be the secret of success, and not the destruction or removal of Meckel's ganglion. In some cases there is no doubt that the posterior dental nerves might be sufficiently removed without interfering with the ganglion, but they will, I think, be the exception and not the rule. In Carnochan's operation they may be occasionally seen after the division of the posterior wall of the antrum and might then be removed, and if the trunk of the nerve lying in the infra-orbital canal were also taken away the anterior and remaining branch would be isolated. In this way complete relief might be obtained if the removal of the ganglion be not essential. But having gone so far as the removal of the posterior wall of the antrum, few surgeons would run the risk of marring the success of the operation by trusting to the imperfect view by which one is enabled to recognise such slender filaments as these nerves present. There can be but little further risk in pulling the nerve-trunk down and removing the ganglion, which must ensure the isolation of all the branches which are distributed to the teeth and gums.

The spheno-palatine branches which supply the inner surface of the gums and the mucous membrane of the palate are also removed if the ganglion be taken away, so that the *gums* as well as teeth are more completely isolated than would be the case if the posterior dental nerves only were disconnected from the main trunk. And it is important to remember that if relief were not obtained a second operation would be almost impossible, for there would be no guide by which to find the divided nerve. For these reasons, therefore, I would advocate the removal of the whole trunk of the second division of the fifth as far back as it can possibly be reached whatever be the correct view as to the function of Meckel's ganglion.

CASE 1.—Patrick D—, æt. 51, time-keeper at one of the co-operative stores for the last ten or twelve years, was sent to me in the out-patient room of St. Thomas's Hospital by Mr. John Pugh in January or February, 1885. He gave the following history: On waking up one morning eleven years ago he noticed a swelling of the right side of his face; he thought at the time that it was due to a draught. The skin

felt cold and numb but not painful. This was followed in a few days by pain in the teeth, gums, and face. All the teeth on the right side of upper jaw were removed on account of the pain about eighteen months after the first attack, but in the opinion of the dentist they appeared after removal to be quite healthy.

Nine years ago the pain became almost continuous, affecting the right cheek beneath the eye, the upper lip, and the right side of the nose to the inner canthus. About this time he was admitted into the National Hospital for the Paralysed and Epileptic and remained there six months. He states that he took a great variety of drugs in this hospital, and amongst others, opium, of which he was finally given 24 grains a day. He did not, however, obtain any permanent relief and betook himself then to a round of "private doctors."

Two years ago he first felt pain in his scalp, chiefly in the supra-orbital and temporal regions, and from that time till the day of operation he had no relief whatever. The pain was both continuous and of a shooting character. A dull aching pain in the region of the distribution of the second division of the fifth seemed always to be present, and occasionally another and more acute form of a stabbing and darting kind was superadded, which started generally just beneath the right eye and radiated over the whole of that side of the face and scalp. The slightest draught would cause these attacks to be repeated every few minutes; and if the weather was damp and cloudy he knew that he had to be especially cautious, for at such times speaking, coughing, and even eating, brought on the paroxysms in an intensified form and with very short intervals. His life had become a perfect misery in his own estimation, and he certainly gave one the impression that this was true. In appearance the right side of the face was slightly swollen and glossy; the right side of the upper lip was almost always tremulous; and during the attacks there was a certain amount of lachrymation on the same side.

Dr. Gulliver, who was kind enough to see the case when he first came to the hospital, agreed in thinking that there was nothing to be done in the way of medical treatment by drugs. He was, however, treated for a few weeks, but with no appreciable benefit, and became an in-patient on April 7th,

1885. The injection of cocain in gradually increasing doses was tried, but it only increased his sufferings as the drug itself gave him no relief, and the prick of the needle brought on the paroxysms with greater frequency and intensity. He was free from any visceral disease which could be detected by examination, and very readily gave his consent to an operation which held out the slightest prospect of relief.

On May 2nd he was shaved whilst under the influence of chloroform, as he really could not stand the pain which it would otherwise have caused. A T-shaped incision was then made just beneath the right eye, the vertical part terminating close to the angle of the mouth, but without opening its cavity or incising the border of the lip. After defining the infra-orbital nerve as it emerges from the foramen it could be seen that there was no abnormality about the orifice which could have led to pressure upon or irritation of the nerve. A trephine, the crown of which measured half an inch in diameter, was therefore applied immediately below and partially including the infra-orbital foramen. As soon as the antrum was opened it filled with blood, which apparently came from the sawn section of bone and the mucous membrane lining its cavity. The subsequent steps of the operation were constantly interrupted in this way, but the bleeding very readily ceased on the application of sponge pressure. The site of operation being confined to so small a space a very little blood completely obscured the view, and so made the operation more tedious than it would otherwise have been. The opening being slightly enlarged with a pair of cutting forceps the same trephine was applied to the posterior and outer wall. I had been led to expect a good deal of hæmorrhage on laying open the sphenomaxillary fossa, but although it was rather profuse for a minute or two it was very quickly arrested by the pressure of a sponge. The infra-orbital canal had now to be broken through so as to get the whole length of the nerve into the wound. I had cut the nerve quite short at its exit from the foramen, and was obliged therefore to commence the opening of the canal without using the nerve as a guide, but as soon as its extremity was free a pair of clamp forceps was applied so that it might be kept constantly on the stretch. An elevator only was used in opening the canal so as to avoid cutting the

nerve or wounding the artery. The former accident would have increased the difficulty in the latter part of the operation, and the former might have given rise to troublesome hæmorrhage in an awkward situation. It will be seen on referring to Mr. Ballance's report at the end of this paper that the artery was removed with the nerve. So that the hæmorrhage from this artery could only have arisen at the end of the operation in using the scissors.

Dr. Rockwell, of Brooklyn, in the '*Annals of Surgery*,' vol. i, January—June, 1885, p. 349, states that he has used a probe-pointed chisel, "the dull beak of which strips up and pushes away the periosteum and vessels, whilst its edge rapidly cuts away or breaks down the thin bony walls against which it is driven." The elevator was, however, in my case quite sufficient till the posterior wall was reached, but here such an instrument as Dr. Rockwell describes would have been very useful in breaking through a comparatively thick ridge of bone at the junction of the roof with the posterior wall of the antrum. When this had been divided and the nerve thus brought into the posterior trephine aperture, the operation was practically completed, for the nerve was quite free and could be seen running up to the triangular part of the spheno-maxillary fossa where it emerges from the foramen rotundum.

Dr. Semon, who was kindly present at the operation, was able to show the parts extremely well by means of his electric lamp, both at this stage and during the enucleation of the nerve from the infra-orbital canal. But even with daylight, when the bleeding had been completely arrested, there was no difficulty in seeing the details above described. The nerve being then kept upon the stretch by the clamp forceps, a pair of strabismus scissors easily effected its division at the farthest extremity of the fossa, just outside the foramen rotundum. It was, however, still held by some filaments passing downwards and inwards. These were undoubtedly the spheno-palatine branches, and were divided without any difficulty with the scissors. The excised nerve could be seen to have several filaments attached to it at its posterior extremity, and a small swelling was thought by many of those who were present at the operation to be the spheno-palatine ganglion. The total length of the part removed was just over $1\frac{3}{4}$ inches, the

branches being carefully kept on one side so that they might not be included in the measurement. The nerve had been cut quite short at the infra-orbital foramen by the trephine, and could be seized only when the canal had been partly laid open, so that the portion included in the measurement was confined to the nerve in the infra-orbital canal and the speno-maxillary fossa.

When all hæmorrhage had ceased and the parts were quite dry the cavities of both the speno-maxillary fossa and the antrum were carefully packed with iodoform gauze and the ends brought out upon the cheek. The wound was then closed with silk sutures, leaving a small aperture in the middle for the ends of the gauze.

The subsequent details of the case may be shortly summarised. The temperature only once rose as high as 100° F. a few days after the operation. The plugs were removed on May 4th, and the wound in the cheek was quite healed on the 13th. He continued to have some discharge, chiefly mucus, from the right nostril till the 26th, when it was noticed to have entirely ceased, and he returned home twenty-four days after the operation. The sensation had by this time in part returned. At first he could not feel the prick of a pin on the right side of nose, inner canthus, and the right side of upper lip, but by the 26th, when he left the hospital, and for some days previously, the sensation had returned almost to its normal condition, except in the immediate neighbourhood of the scars and the upper lip.

There was no abnormal sensation in the palate or gums, which were now quite free from pain.

The right side of the upper lip was lower than the left, and evidently partially paralysed. The right nostril was less open than the left, and caused some obstruction to the free entrance of air. But both these evidences of imperfection were only noticeable on careful examination.

I have seen him from time to time up to the present date (August 31st, 1886), and he has been perfectly free from pain of any kind. The two sides of the face seem to be exactly the same, except that on deep pressure over the cicatrix there is some slight tenderness. There is still a little difference in appearance between the two sides of the mouth and the two

nostrils. The former droops a little on the right side, but seems to move naturally ; the latter is collapsed and on a lower level on the right, partially obstructing the entrance of air on that side.

CASE 2.—James A— was sent to me in November, 1885, by Mr. H. C. Hodges, of Watton. He was a strong healthy agricultural labourer, æt. 66, and scarcely looking as old as he was stated to be. For nine years he had been suffering from a very intractable and severe form of facial neuralgia. It began quite suddenly by an attack of acute pain in the right side of the face beneath the eye. The pain was chiefly in the form of paroxysms, lasting a few minutes, and recurring with very variable rapidity according to the presence or absence of certain exciting causes. If at all worried or anxious about his work the paroxysms of darting, shooting pain would occur twenty times in an hour. But when at rest and in a warm room he might have a few hours' interval in which he only felt a dull aching pain in the position of the infra-orbital nerve. It was always worse during October, November, and December, and in cold wet weather. But from the commencement he had never been free from these attacks for more than a month at a time, and during the last eighteen months there had been scarcely any interval, for no day would pass without some shooting pain in the face.

His appearance certainly bore out his own description, for in the mere effort of talking one could see that every few minutes the right eye was convulsively closed and the whole of the same side of the face distorted. The eye also became suffused with tears and he had to wait for about a minute till the paroxysm had passed off. When quiet and alone the attacks were less frequent, but even then he was scarcely free from pain for more than half an hour. He did not sleep at all at night without morphia, which was only given after the night-nurse had confirmed his own report. All his teeth had been extracted from the right side of the upper jaw and he had had every variety of treatment whilst under the care of Mr. Hodges. Dr. Sharkey also kindly saw him and prescribed a few drugs, but thought they were unlikely to do him any good.

After a few weeks' treatment and a careful examination of

all his organs had shown that he was a healthy man, I proposed the same operation that had been carried out in the preceding case.

On December 30th, 1885, the right infra-orbital nerve was excised through the antrum. The operation was somewhat more difficult than in the last case as the cheek was a good deal thicker, a condition which considerably increased the depth of the wound. The excised nerve was unfortunately not measured at the time, but although it was certainly not so long as in the case of the first patient, I felt quite sure it was well beyond the spheno-palatine ganglion. The bone was also very brittle and broke at the gentlest pressure of the trephine. The walls of the antrum seemed to be abnormally thin and very fragile, but one had no evidence to prove whether this was due to the age of the patient or the disease which had given rise to the neuralgia. I think, however, that this condition of the bone must have been the cause of the sinus which, it will be seen in the subsequent history of the patient, has existed in the site of the operation wound up to the present time.

For the first fortnight he continued to suffer from sharp and shooting neuralgic pain, but not like the condition before the operation; the loss of sensation in the skin supplied by the infra-orbital was also not quite so complete as in the first case. He could not describe the difference between the attacks before and after the excision, but it was quite clear they were much less frequent and less severe.

By January 15th, 1886, sixteen days after the operation, the pain had quite gone and he had no further return. He could eat and talk with comfort and there was no distortion of the face. There was very little constitutional disturbance, and the discharge gradually diminished. Several attempts were made to withdraw the tube when the discharge had become insignificant in amount, but always unsuccessfully, for in the course of a few days it became clear that pus was forming behind the cicatrix. He left the hospital on April 5th with a sinus in the centre of the original wound. It had been frequently probed, but we could never find any sequestrum. He had been absolutely free from any neuralgia from January 15th and was delighted with the result.

October, 1886.—The above paper had been written and laid on one side, so that it might be sent to press at the last moment, and oddly enough both patients have returned complaining of a slight recurrence of their old symptoms.

CASE 1.—Patrick D— came on September 18th, complaining of slight neuralgic pain on the inner side of the scar and the corresponding part of the nose, which had been felt for the first time the day before his visit to me. He was given 5 grains of quinine three times a day, and on September 30th reported himself as being nearly well. He stated that he would not have come at all, as the pain was very slight, had I not cautioned him as to the possible recurrence of the neuralgia, and his dread of the former condition of suffering to which he had been a martyr.

CASE 2.—James A— was readmitted into St. Thomas's Hospital on September 3rd, as he came from the country complaining of a slight return of the neuralgia. It had been noticed about three weeks. The pain was not in the same place nor of the same severity as it had been before the operation. The temporo-malar branch seemed to be the only part involved, and as this nerve is given off just outside the foramen rotundum behind the origin of the branches for the spheno-palatine ganglion, it is not impossible that it escaped division. This is rendered more than probable when the description of the operation is referred to. The sinus in the cheek was still present, but its edges had cicatrised, and the discharge came only through the nose, possessing the characters of mucus.

The pain was of a very trifling character during the day, and did not keep him awake at night. The skin over the malar bone was very tender, differing in this respect entirely from the rest of the region supplied by the second division of the fifth. In fact the other parts, such as those of the nose and lip, were less sensitive than the corresponding skin on the opposite side of the face. He was given quinine in gradually increasing doses, and when he had taken as much as gr. x, 4tis horis, the pain entirely ceased. This was then reduced to gr. x, t. d., as there was a slight buzzing in the ears. The tenderness over malar bone was then quite gone, and he was absolutely free from neuralgia. When this result had been

permanent for ten days he was allowed to go home (September 24th).

It is evident that both these cases must be watched for a much longer period before one is enabled to say that neurectomy gives permanent relief, and I hope on some future occasion to record the ultimate result of this treatment. The operation has in these cases at any rate procured temporary relief, but if this is all that is obtained nerve stretching would appear more suitable, as it can be frequently repeated. In neurectomy one takes away the only means one has of acting upon the Gasserian ganglion by employing traction upon the nerve-trunk, an operation which has been followed by temporary benefit. On looking through the valuable statistical table which Dr. Fowler has compiled in the 'Annals of Surgery,' April, 1886, one is forced to the conclusion that most of those cases of neurectomy which are reported as cured have been watched for too short a period to enable one with certainty to say that they have been permanently relieved of their trouble.

Mr. Ballance has been kind enough to examine the excised nerves for me, and I have much pleasure in adding his report to my paper, as the examination throws some light on the pathology of the disease in these two cases, and suggests that neurectomy has some sound arguments for its support.

Examination of the two infra-orbital nerves. By CHARLES A. BALLANCE.

A dissection was first undertaken with the aid of a hand lens in order to determine the presence or absence of Meckel's ganglion. In each specimen the infra-orbital artery was found side by side with the nerve, and bound to it by a good deal of areolar or fibrous tissue which was especially abundant at the proximal end.

The nerve which was removed in Case 1 had a quantity of fibrous tissue clinging to it at the spheno-maxillary end. In this loose material a small mass was discovered, which it was thought might be a part of the ganglion. It was submitted to microscopical examination, but no ganglion cells, only

fibrous tissue, could be seen in the sections. This, however, is not conclusive, for after making sections of a ganglion obtained from the post-mortem room, the ganglionic cells were only found with difficulty, in consequence of the feeble way in which they absorbed the colouring reagent employed, and because they were mostly scattered singly and at long intervals from each other. There was also found in immediate relation with this small solid lump a branch from the nerve, which was probably the origin of one of the spheno-palatine branches or else the posterior superior dental nerve, most likely the latter.

The nerve which was excised in Case 2 exhibited no trace whatever of the ganglion or of the origin of the posterior superior dental nerve.

A normal infra-orbital nerve, taken from the post-mortem room, and prepared in a like manner to those which had been removed by operation during life, was cut transversely, and compared with the transverse sections of Mr. Clutton's specimens. *Under a low power* a remarkable difference is noticeable between the appearance of the transverse sections of the normal nerve and the sections of those removed for neuralgia. In the former instance there is a certain uniformity in the size and arrangement of the nerve bundles and the amount of tissue lying between them, whilst in the latter the nerve bundles are smaller, more unequal in size and distribution, and there is a much larger quantity of fibrous material separating them; and the logwood stain is much deeper.

Under a high power the sections of Mr. Clutton's specimens show the individual nerve-fibres in the bundles compressed, diminished in size, with faint and irregular outlines, and with their axis-cylinders deeply stained.

The growth and increase of the tissue between the nerve bundles appears to encroach upon and diminish the space which is normally occupied by them.

DESCRIPTION OF PLATE XIII,

Illustrating Mr. Clutton's paper on Neurectomy of the Second Division of the Fifth Nerve.

Transverse section of infra-orbital nerves.

FIG. 1.—A normal nerve removed in the post-mortem room. × 25.

FIG. 2.—Section of nerve in Case 1, showing increase of inter-fascicular tissue.
 × 25.

FIG. 3.—Same of Case 2. × 25.

Fig 1

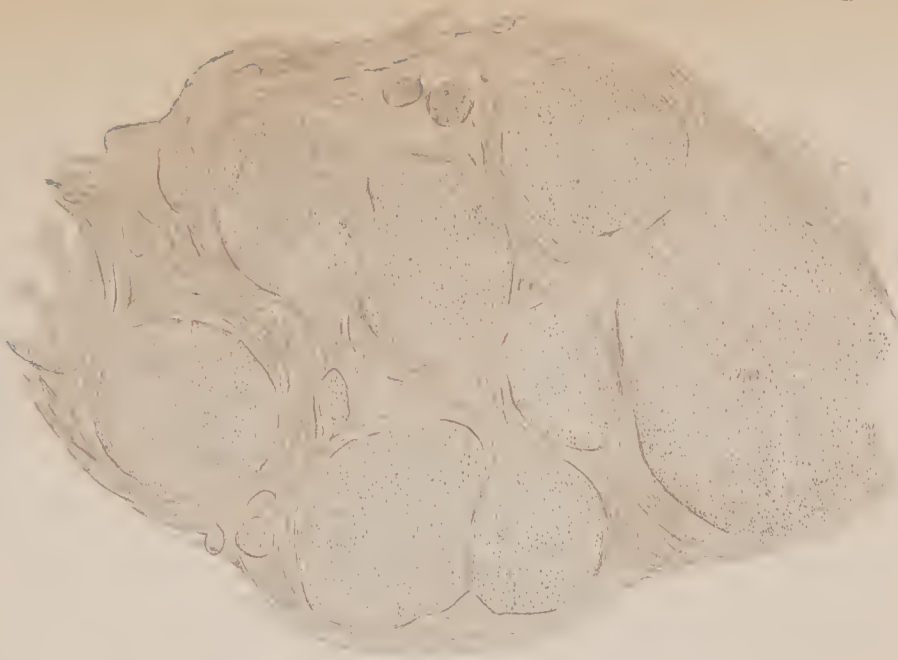


Fig 2.

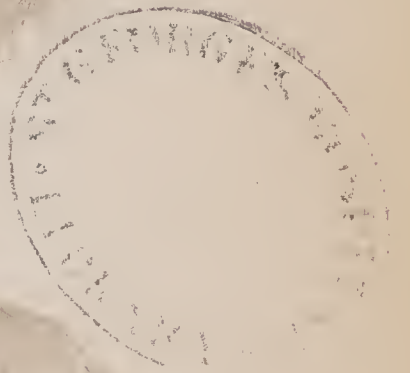
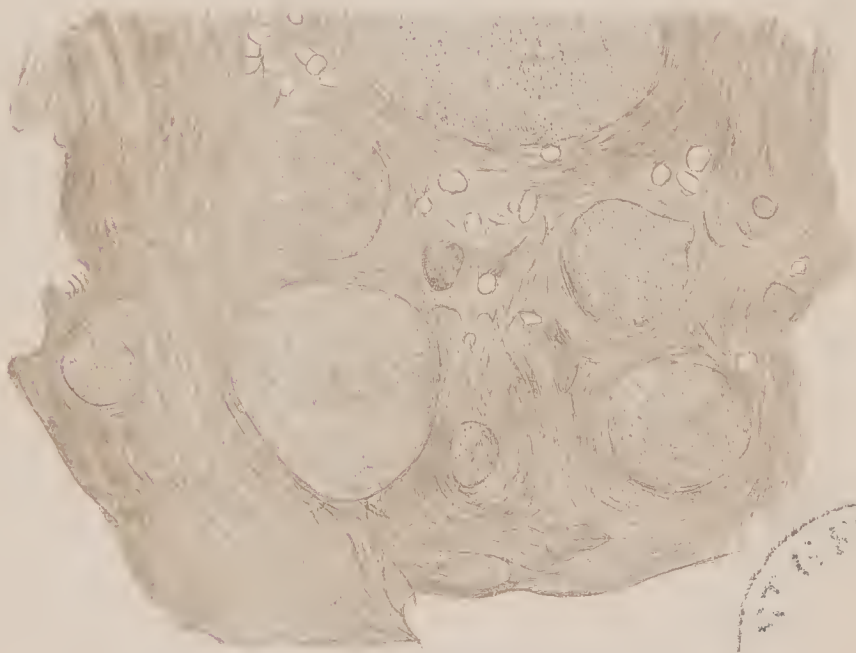
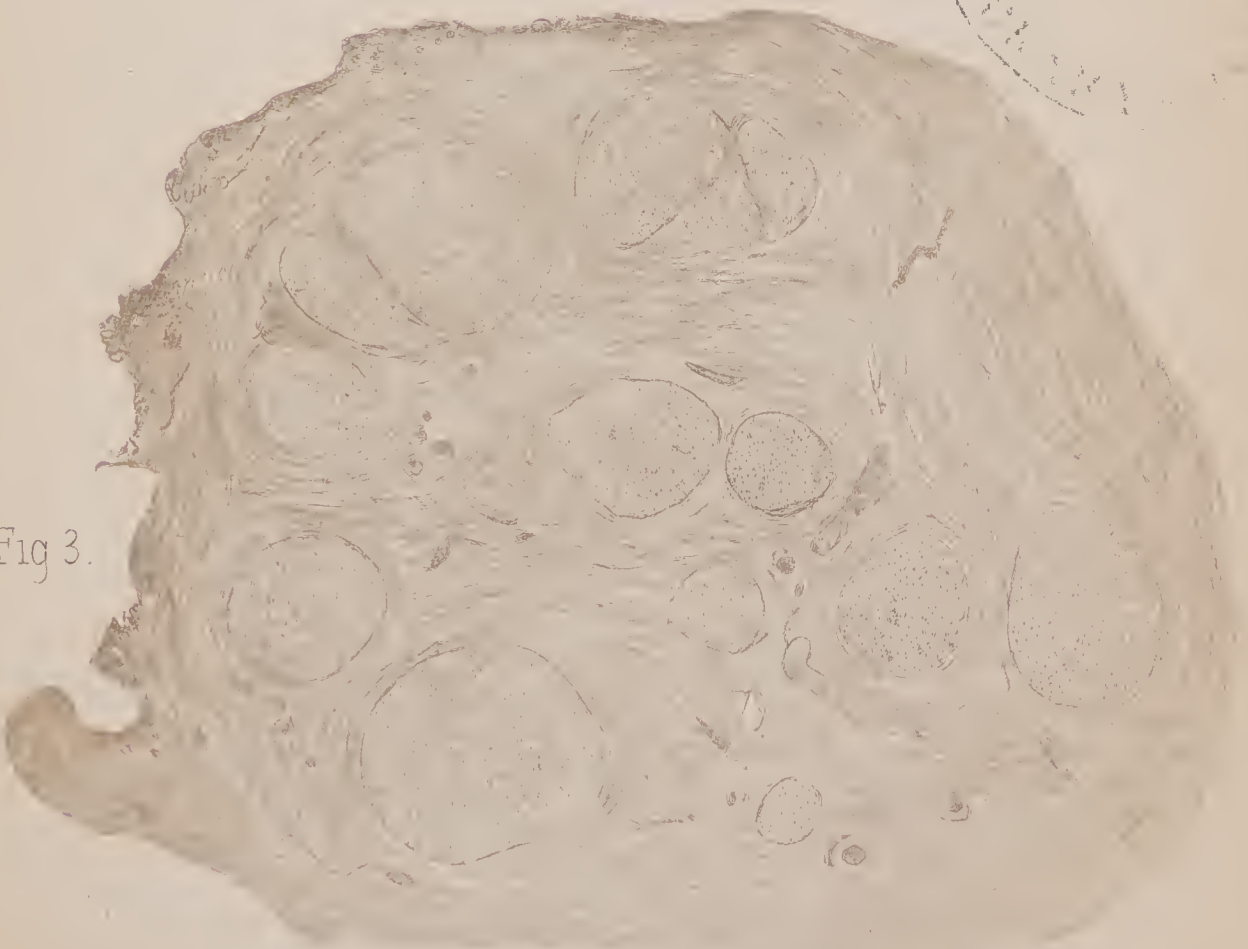


Fig 3.



A NOTICE

OF THE MORE INTERESTING OF THE

ADDITIONS MADE TO THE MUSEUM DURING THE PRECEDING YEAR.

BY SAMUEL G. SHATTOCK,
CURATOR OF THE MUSEUM.

Gumma involving the Motor Area of the Left Hemisphere.
(Dr. Ord.) 'Path. Soc. Trans.,' 1886.

THE inflammatory new formation involves the more superficial part of the left hemisphere, and as displayed in vertical transverse section is biconvex, its outer and less convex surface being conformed to that of the hemisphere. In transverse horizontal diameter it measures 3·3 centimetres, in vertical 2·5 centimetres. It lies behind the upper part of the fissure of Rolando in the ascending parietal convolution, and in the superior parietal lobule; its inner limit is 2·6 c.m., from the middle line. The brain-substance around is softened. The dura mater and arachnoid are indistinguishably blended, thickened, and adherent to its outer surface. The patient, a man æt. 38, was admitted under Dr. Ord's care, March 3rd, 1885. During the year preceding admission part of his lower jaw was removed for necrosis. About three weeks before his admission he was suddenly attacked with numbness in the fore and middle fingers of the right hand, speedily extending over

the whole arm; then the arm and also the head began to twitch violently. After the attack the arm was left weak and numbed, and subsequently the leg, gradually and without any fresh attack, manifested the same weakness.

On admission, he complained of severe pain on the left side of the head, limited to an area of about three square inches, near the vertex just in front of the parieto-occipital suture; the skin here was a little swollen, and firm pressure or light percussion elicited strong indications of tenderness.

During the week after admission rhythmical twitchings of the right arm and leg were observed, lasting on each occasion for a few minutes. Speech was slow from imperfect movement, and not from aphasia; the mouth was distinctly drawn towards the left. The pain became more severe; power and sensation faded more and more from the limbs, and articulation failed. At the end of the third week the twitchings, which had been absent since his first days of stay in the hospital, returned; the arm was rigid in the position of flexion; the right eyelids could not be accurately closed; loss of sensation extended up the arm to the shoulder. At the beginning of April rigidity was present in the right leg, and the previous headache and stupor deepened into coma. Death took place on the 6th of April, 1885.

The treatment adopted consisted first in the administration of iodide of potassium with perchloride of mercury.

For the headache, bromides, chloral, Indian hemp were prescribed, the bromides being apparently the most efficacious.

This case is one of the best of the few yet recorded, in which an accurate localisation of the cerebral lesion was possible from the symptoms observable during life.

Central Glioma of the Spinal Cord. (Dr. Stone.)

The case from which this very rare specimen was obtained is fully described by Dr. Sharkey in his 'Gulstonian Lectures,' 1886, and from them the following abstract is drawn.

The tumour involves mainly the cervical enlargement of the spinal cord and is regularly central, the nervous tissue being stretched around it so as to form a complete enveloping sheath.

In its largest part the diameter of the growth is, transversely, 2 millimetres, and somewhat less from before backwards; in its centre is a space containing blood.

Microscopically the nerve-tissue presented scarcely any pathological changes; the giant-cells of the cornua were more or less elongated by pressure, and pigmented.

The chief lesion, besides this, found after death was malignant disease of the fundus of the gall-bladder from which there spread a large mass of carcinoma into the right lobe of the liver; the gall-bladder was completely filled with a large stone. The spleen contained several infarcts.

The symptoms were remarkably slight and due to the pressure slowly exerted within the cord by the new growth; they were, partial loss of power and of sensation in the arm and hands, and some tremor in them when used. Death occurred twenty months after the appearance of the first symptoms.

Six months before death his legs became affected with numbness and loss of power; three months before death the legs were completely paralysed and anæsthetic; there were no wasting of muscles, rigidity, or tremors. This accession arose in relation with hæmorrhage and softening in the dorsal region of the cord. Death was due to embolism of the right middle cerebral artery giving rise to left hemiplegia.

Myxo-chondroma growing from the Falx Cerebri. (Dr. Stone.)
'Path. Soc. Trans.,' Dr. Hadden, 1886.

The tumour was found unexpectedly after death, there having been no indications of cerebral disease during life. It is attached to the right side of the falx, and rests in a deep fossa, which it has produced in the brain by its growth. This fossa corresponds with the hinder part of the paracentral lobule, and the quadrate lobe.

The new growth is somewhat biconvex, an inch in diameter, and tuberculated on the surface.

The part of the brain involved lies behind the centres lately discovered on the median aspect, by Professor Schäfer and Mr. Horsley.

Two Specimens of Charcot's Disease. (Mr. Croft, Dr. Hadden.)
'Path. Soc. Trans.,' Dr. Hadden, 1886.

The first of these is a knee-joint. There are numerous bony outgrowths along the margins of the articular surfaces. The anterior part of the head of the tibia has been destroyed, and the bone is subluxated backwards. There is a large mass of new osseous tissue beneath, but discontinuous with the patella.

No change was found in the peripheral nerves microscopically, except a doubtful thickening of the perineurium in the internal popliteal.

The specimen was obtained by amputation from a man æt. 52. The knee-joint became swollen and painful three years before admission; the swelling subsequently extended down to the ankle. Two years ago an ulcer appeared on the under surface of the right great toe.

The patient on admission had ptosis and external squint on the right side. The pupils did not react either to light or during accommodation. The right great toe was red and swollen, and there was a perforating ulcer on the under surface which opened into the inter-phalangeal joint. The left knee was much enlarged; the femur was displaced forwards and outwards, the tibia backwards and inwards. There was no wasting of the muscles, but co-ordination was imperfect. Patellar reflex was absent. There was some incontinence of urine, and decided loss of sexual power, but neither had existed for more than three weeks.

Four ounces of sanious pus were removed by the aspirator, the puncture being made over the outer side of the joint.

Ten days after this the skin had much thinned over the joint in two places—below, and to the outer side; these portions of skin gave way, and a semi-transparent fluid began to ooze from them. The larger opening was afterwards enlarged by incision, and a probe passed backwards was found to enter the knee-joint. There was brisk plantar reflex in both legs, the sensation being, however, delayed in each.

The limb was amputated by Mr. Croft, and the patient ultimately recovered, though in danger once from secondary hæmorrhage. The disease in the foot was cured at the time of his discharge.

The second specimen is a left shoulder-joint. The capsule of the joint is much dilated and thickened, and extensive plates of bone have been formed in it. Its inner surface is beset with sessile and pedunculated growths, and there were many loose bodies of cartilage in the articular cavity. The head of the humerus is completely wanting, the surface of the upper end of the shaft being bare and eburnated, lowly rounded, and with scarcely any indication of new bone formation. Similar changes have occurred in connection with the glenoid cavity, the head and neck of the scapula having entirely disappeared. During life there was a discharge of pus from the joint.

This specimen was obtained from a man, the subject of most severe gastric crises. There was marked dragging of the left foot from atrophy of the anterior tibial muscles. Some bony outgrowths were found about the right elbow and right knee-joints. The spinal cord showed posterior sclerosis extending into the lateral columns and anterior root-zone. The postero-lateral groups of cells at the level of the eighth cervical nerve on the left side had disappeared, and also nearly all the motor cells at the level of the third lumbar pair of nerves, which last fact explained the muscular atrophy of the front of the leg. Sclerotic change was observed also about the roots of the vagus, and proved the accuracy of Dr. Buzzard's conjecture that gastric crises in locomotor ataxy indicated an extension of sclerosis to the roots of that nerve, which conjecture he had drawn some years previously from the consideration of the present case.

A Heart affected with Incomplete Thrombosis of both Ventricles.
(Dr. Bristowe.)

Both the ventricles are enlarged. There is no valvular disease, and no evident disease of the muscular tissue.

Each ventricle is thickly lined with a light pink clot. The clot fills all the interstices between the columnæ carneæ, and surrounds the chordæ tendineæ up to the margins of the valves. Its inner surface is quite smooth. It admits of being cleanly detached, though firmly held in place against the endocardium.

From a man æt. 44, who died exhausted with malignant disease of the stomach, November 16th, 1885. At the time of his admission, September 14th, 1885, nothing abnormal was detected on examination of the heart, nor was anything suspected of the thrombosis during life.

Two Specimens of Ulceration of the Larynx in Typhoid Fever.
(Dr. Ord.)

The first specimen was from a girl æt. 9, admitted under Dr. Ord's care on November 25th, 1885, and who died on December 7th. She was seized with vomiting and diarrhœa ten days before admission, and when admitted presented the usual symptoms and signs of typhoid. There is a deep, well-defined ulcerated cavity large enough to hold a pea, on the left side of the larynx; it is situated over the inner surface of the arytenoid cartilage, on a level with but behind the vocal cord; there is no denudation of the cartilage, and the cavity is lined throughout with granulation tissue.

The second specimen (Plate XIV, fig. 1) is from an adult male, æt. 22, admitted December 6th, 1885. He could fix no definite beginning of his illness, but reckons it would be about ten days before admission. Seven days before entering the hospital he commenced to vomit after food, and kept his bed greatly prostrated.

Death occurred on January 11th, 1886. There is an abscess cavity around the posterior part of the cricoid cartilage, which is denuded and in a state of necrosis. The cavity communicates with the interior of the larynx by an aperture situated (as in the preceding specimen) behind the attachment of the left vocal cord to the arytenoid cartilage.

The symptoms associated with this disease of the larynx were frequent attacks of dyspnœa, in one of which the patient died.

Fig. 1.

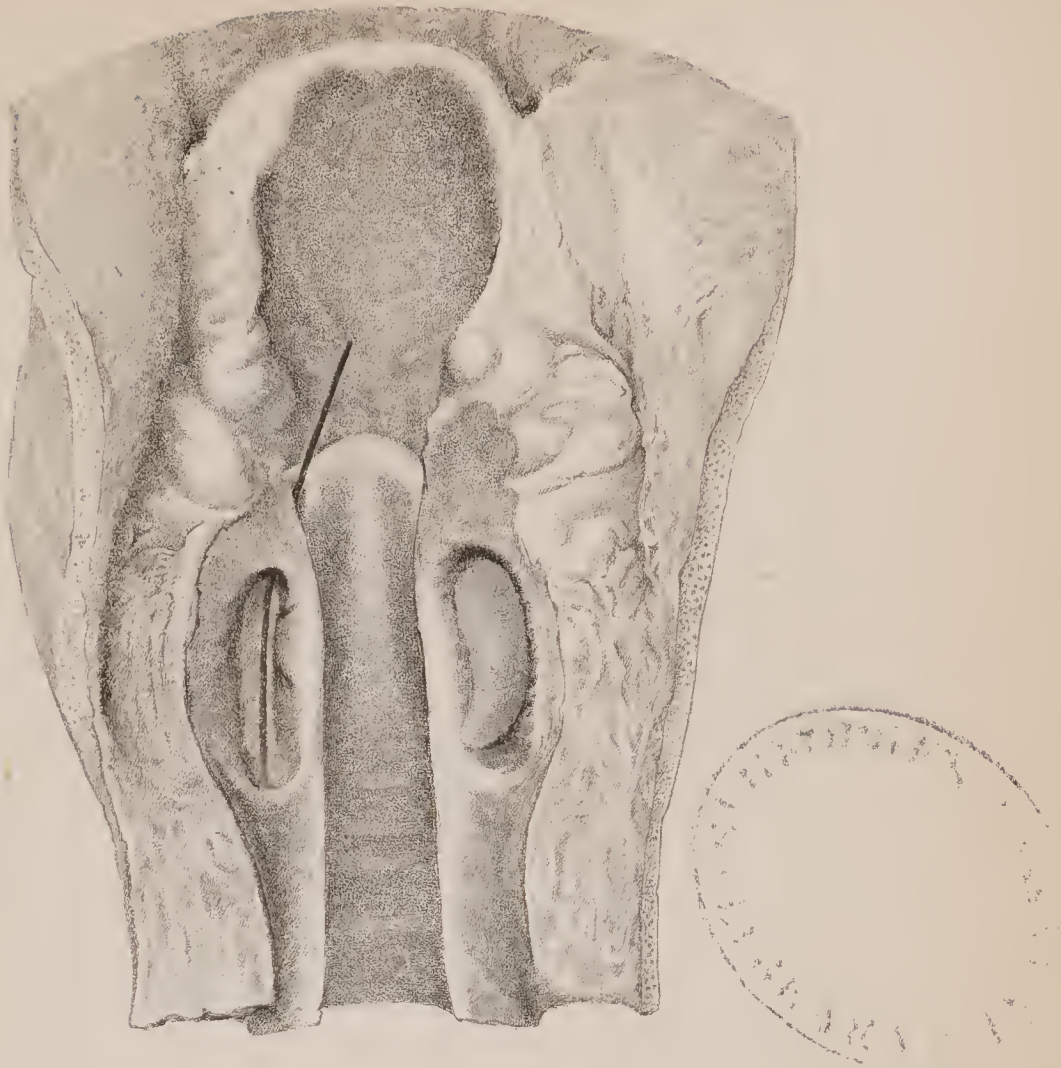


Fig. 2.

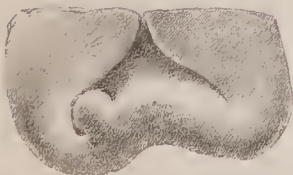


Fig. 3.

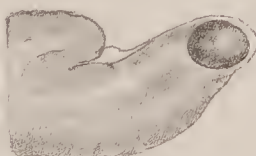


Fig. 4.



Fig. 5.

The Blade of a Tooth-forceps, removed from the Right Bronchus.
(Sir William Mac Cormac.)

The blade was broken off and inspired during the extraction of the right upper second bicuspid under chloroform.

A violent fit of spasmodic coughing ensued ; on regaining consciousness the patient experienced intense dyspnœa. Inversion and shaking were tried without avail.

The patient kept her bed, suffering from fits of coughing, and was admitted to St. Thomas's Hospital seven weeks after the accident.

Tracheotomy was performed, and attempts made to remove the blade by various kinds of forceps, &c., the difficulty arising from the instruments slipping off the foreign body. The patient had been placed in an almost inverted position, so that, if loosened, the piece of steel might fall towards the opening in the trachea.

Ultimately a pair of polypus forceps were successfully used, and the foreign body withdrawn. The edges of the trachea were accurately brought together with silk sutures, two drainage-tubes were put into the external wound, and the latter closed by four silk sutures and dressed with iodoform and iodoform gauze.

All this time—about an hour and a half—the patient was kept partially under the influence of chloroform administered through the tracheal opening by a tube.

The sutures were removed seven days afterwards. Except at the lower part the wound soon healed ; here for a short time some air passed in and out. Fourteen days after the operation the pain and other chest symptoms had completely disappeared.

Portions of the Trachea of a Child affected with Syphilitic Endo-tracheitis. (Presented by Mr. R. W. Parker.)

The disease is limited to the mucous membrane and submucous tissue, without involving the other structures of the trachea. The submucous tissue is greatly increased in thick-

ness, and of a dense fibroid structure. The condition extends into the bronchi, where it is so marked as almost to close the lumen of the passage.

From a male, æt. 13, who was affected with syphilitic ulceration of the soft palate and epiglottis, the larynx being subsequently involved.

The condition of the larynx necessitated tracheotomy, and the tube was worn for many months; after its removal a tracheal fistula remained.

About two years after the removal of the tube the patient suffered from nodes on various bones, and afterwards from recurrent attacks of broncho-pneumonia.

There were no suffocative symptoms until a few hours before death, rapidity of breathing being the only symptom observed during life.

After death it was found that the condition of the trachea first described involved about its lowest inch, into which it had extended by the bronchi from the lung.

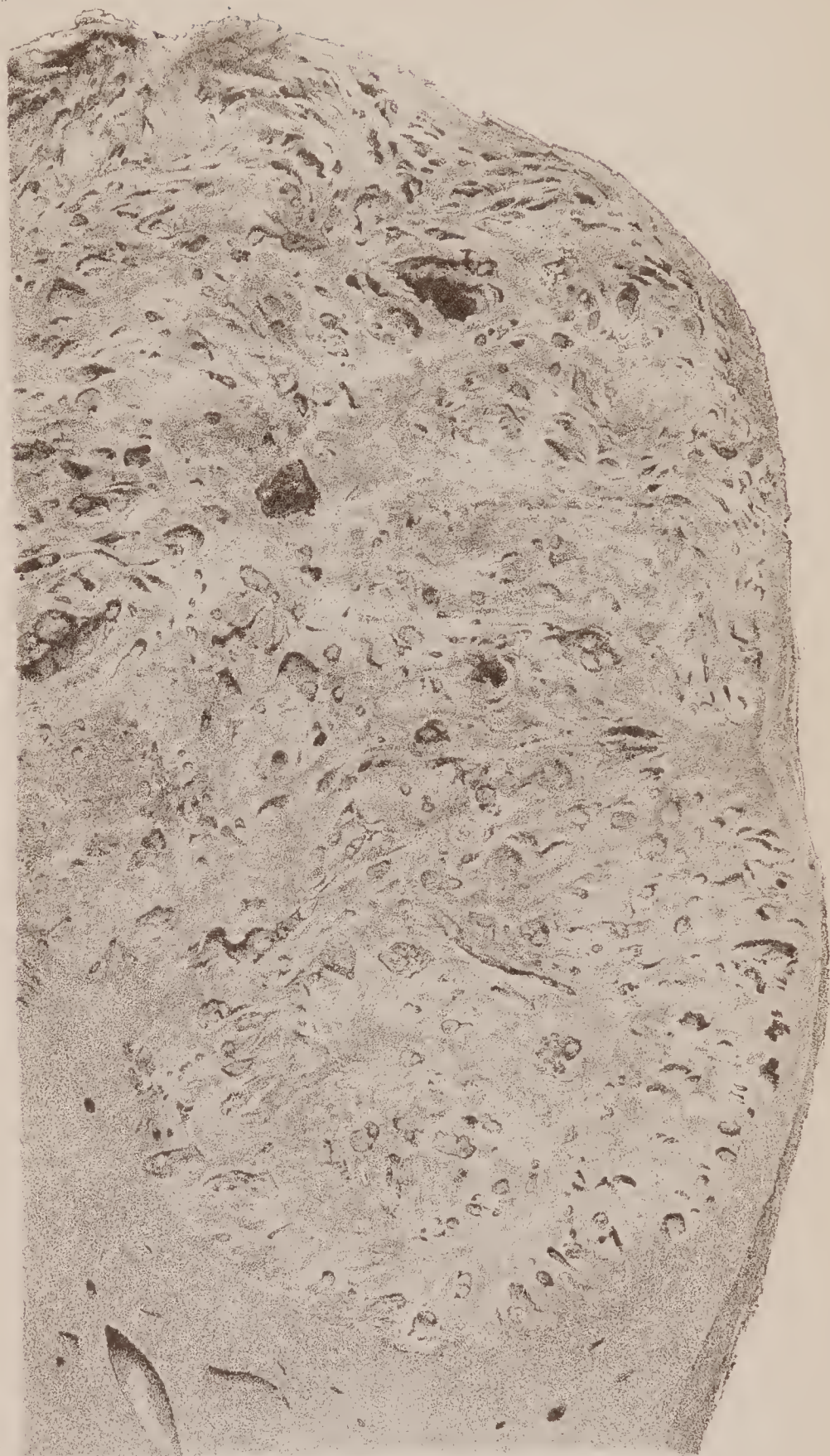
The larynx was healthy, though generally small, probably from the disuse occasioned by the long use of the tube.

A Larynx Showing an old Fracture of the Left Superior Cornu of the Thyroid Cartilage. (From the dissecting room, through Dr. Reid.) 'Path. Soc. Trans.,' 1886, Mr. Ballance.

The detached cornu is connected with the ala by a narrow cord-like process of fibrous tissue. The left ala is markedly flatter than the right, this want of symmetry having been occasioned apparently by a blow from the left side, which also fractured the cornu.

A Silver Tooth-plate to which four Artificial Incisors were attached, successfully removed by Œsophagotomy. (Sir William Mac Cormac.)

The plate was swallowed during an epileptic fit. When the patient regained consciousness she had some difficulty in breathing and swallowing.



From a Photograph



She was admitted into the hospital two hours after the accident. Various attempts were made to extract it with œsophageal forceps. Œsophagotomy was done on the following day.

The œsophageal wound was closed with three sutures of catgut. The external wound was disinfected with a 1 in 1000 perchloride of mercury solution. Two drainage-tubes were inserted, and the margins of the skin united with silk sutures. The wound was dressed with iodoform, salicylic wool, and gauze bandages. The patient was ordered to be fed by the rectum.

The patient left the hospital well sixteen days after the operation.

A Liver affected with Actinomycosis. (Dr. Harley.) Plate XV.
'Trans. of the Royal Med. and Chirur. Soc.,' 1886.

This specimen was shortly noticed, with others of the same kind, in the preceding volume of the Hospital Reports.

The appearances presented are so characteristic that part of the specimen is figured on Plate XV. The liver was the seat of multitudes of suppurating foci, aggregated for the most part into large spheroidal masses.

The individual foci measure in section about 1·5 millimetres, though it is only in certain directions that they are circular; in others they are oval, or appear as longer passages which riddle the hepatic tissue; in them lie the small spherical "cores" of the parasite. The chief mass of disease involves the upper and posterior part of the right lobe; the liver here was inseparably united to the diaphragm.

The mycology of the disease has been recently investigated by Dr. Acland, who has furnished the following note from an examination of the specimen under consideration, as well as of another (S. 12) that has been for many years in the museum of St. Thomas's Hospital.

"The fungus consists of innumerable fine threads radiating from a common centre; these are both single and branched, straight or twisted, but all have a tendency to spread out amongst the surrounding inflammatory cells. The growths extend peripherally, having central areas of degeneration, and

as the circles extend a series of fairy rings is formed, enclosing masses of tissue which have undergone fatty or calcareous degeneration.

“These appearances superficially resemble those found in actinomycosis bovis; but the structural details of the growth are very different; so that it is probable that this species is not identical with that which has been so fully described by Johne, Ponfick, Israel and others as occurring in cattle and man; but pending further investigation a new name has not been proposed for the disease. In true actinomycosis the organism consists of a tufted rosette made up of radiating, pyri-form, or club-shaped structures, which are very much broader and not so long as the fine threads found in these two cases.

“Three cases of what is believed to be the same fungus have been observed in Germany, one by Prof. Weigert, another by Prof. Israel, and a third by Dr. Acland. The majority of cases recorded, however, are undoubtedly of the same nature as actinomycosis bovis.

“It has been urged that the fungus is not only not the cause of the disease but is nothing more than an adventitious post-mortem growth, to which it may be replied that each mass of the growth is the focus of an area of inflammation; that amongst many thousands of other specimens of every kind of tissue prepared in a precisely similar manner no such growth has been detected, and lastly, where a mycelium has been allowed to grow in the hardening fluids or on the specimen by way of experiment, it is obvious that the growth is not *in* the preparation as in these cases, but it consists of coarse threads not radiating from a common centre, but either lying in a tangled skein on the surface of the specimen or traversing it in single fibres which have no resemblances to the actinomyces here described.”

The following notes of the case are from Dr. Hadden's “Medical Reports.”

J. R. W—, æt. 30, joiner, admitted under Dr. Harley, October 1st, 1884.

He had had no illness since measles in childhood, and had never been abroad. Three months ago he had pain in the right side and vomiting, which lasted a month. When admitted he complained of pain in the left hypochondrium, where

there was a tender lump the size of an orange. The temperature was 101.2° . As the swelling fluctuated it was incised on October 4th, and a small quantity of pus and blood evacuated.

On November 3rd an abscess in the right lumbar region was opened, and about two ounces of pus evacuated.

On the 28th, he expectorated three quarters of a pint of muco-purulent fluid. Over the lower third of the right lung there were dulness, diminished voice-sounds, and coarse crepitation. On December 9th he died.

Post-mortem.—There was lobular pneumonia, in the lower lobes of both lungs, and intense pericarditis, the cavity containing a pint and a half of fluid. The vermiform appendix was ulcerated, and leading from it was the lumbar abscess which had been opened during life.

From the above it is plain that infection occurred from the vermiform appendix, the infective process extending by the subperitoneal connective tissue towards the liver.

There were a few actinomycotic foci in the lungs.

This case is fully reported by Dr. Harley in the ‘Transactions of the Royal Medical and Chirurgical Society.’

Tumours removed by Operation from the Female Bladder.

(Presented by Sir Henry Thompson.)

This specimen has an especial interest, as being the first tumour removed in England from the bladder by supra-pubic operation.

The growths removed consist of about a dozen pieces of various sizes, the largest three quarters of an inch by an inch and a quarter, and three quarters in the direction of its thickness; a second piece is almost as large. The pieces are of somewhat firm consistence; their surface presents little or no villosity; in some spots it is entire, in others, ulcerated. Microscopic examination shows the tumour to be a carcinoma.

The operation was performed on a lady æt. 73, on October 17th, 1885. The patient, though considerably relieved, died within about a year, from recurrence of the disease.

Two Specimens of Preputial Calculi. (Presented by Mr. Croft.)

One of these is half of a large single calculus, of regularly ovoidal form, one and three quarters by one and a half inches.

Its central part, which is incomplete, consists of a friable collection of crystals, like those composing vesical calculi of ammonio-magnesian phosphate; the rest is of a pale fawn colour and has a laminated construction, the laminae again showing a fine radial striation.

The second specimen consists of twelve calculi, others from the same case being in the Museum of the Royal College of Surgeons. The calculi are mostly of an elongated form, averaging about three quarters of an inch in length. Amongst them are two others, of compressed oval shape, the largest three quarters of an inch in its chief diameter.

Their aspect in section is like that of the preceding, except that they have no differentiated centre. In one there is a narrow piece of dark resilient woody tissue as a nucleus; but careful examination failed to discover anything similar in others.

CASE 1. September, 1882.—A native of one of the Solomon Islands, brought to Fiji for employment on a sugar estate. He was eighteen, and on being inspected by the Emigration Medical Officer in Fiji, Mr. B. Corney, was found to be the subject of congenital phimosis. The single preputial calculus was removed, and found to weigh 1 oz. 110 grs.

CASE 2. September, 1881.—This man, æt. 17, presented himself under similar circumstances. He was the subject of congenital phimosis; there were in all twenty-two calculi beneath the distended prepuce.

Mr. Corney writes that nearly all the natives of the Solomon Islands have congenital phimosis; the Fijians, who are a much superior race, all circumcise, or slit the prepuce.

The calculi, as shown by Dr. Bernays, consist of triple phosphate and traces of urates. Their mode of formation has apparently been the same as that of similar stones, which are formed in the urinary bladder.

Nothing perhaps may be better likened to a bladder affected

with septic cystitis than the prepuce periodically distended with urine during micturition, affected with chronic inflammation, and in the retained fluids of which fermentation has been induced by the free access of air. The foreign body forming the nucleus of one of the calculi was perhaps detached from some rude instrument used by the patient to relieve the difficulty of micturition.

Pedunculated Dermoid Tumour Removed from the Sigmoid Flexure. (Presented by Dr. Floyer through Mr. Clutton.)
Plate XIV, fig. 2. 'Path. Soc. Trans.,' 1886, Mr. Clutton.

The tumour is of an ovoidal form, and measures about three inches in its chief diameter. It has a perfect covering of skin provided with fine hairs, except near the pedicle (which is double) where the skin is bald, smooth, and glazed like the surface of a cicatrix.

Through the centre of the glazed portion is a small opening, which was doubtless that by which an abscess opened from the tumour, as recorded in the history of the case.

The new growth consists of fat and fibrous tissue, and contains a small branching piece of hard bone.

Histologically the glazed portion noticed was found to be devoid of papillæ, invested only with a thin layer of epithelium, and in all respects like the tissue of an ordinary cicatrix.

The patient, a girl between 8 and 9 years of age, was taken suddenly ill on October 9th, 1884, with pain, rigors, high temperature, and diarrhoea. On November 1st a large quantity of very offensive matter and blood was evacuated per anum, apparently from the bursting of an abscess. On November 9th a tress of hair of considerable size was removed by the anus. The acute symptoms subsided in about four or five weeks from the commencement of the attack, but she still continued to suffer from very distressing symptoms of tenesmus. About Easter, 1885, it was first noticed that something protruded from the anus during the attacks of tenesmus, which always accompanied evacuation of the bowels. Chloroform was given, and when the child was fully under its influence, the tumour, which had previously been felt by Dr.

Floyer, on rectal examination, was pulled down for inspection. As the tumour was pulled down, a swelling, which had for some time existed on the left iliac fossa, disappeared; it was concluded, therefore, that the attachment of the tumour was to the mucous membrane of the sigmoid flexure, and that by constant straining the membrane had become so stretched as to allow the growth to descend as far as the anus. A silk ligature was passed round each of the pedicles, which were then divided with scissors.

Ossifying Chondroma Removed from between the Muscles of the Thigh. (Mr. Croft.) 'Path. Soc. Trans.,' 1886, Mr. Battle.

The tumour is distinctly encapsuled, somewhat lobulated, oval, about $3\frac{1}{4}$ inches by 2. It is composed of cartilage, which is in many parts calcified, in others osseous. It was situated in the left thigh in the angle between the sartorius and tensor vaginæ femoris, and lay beneath the fascia lata. Its origin was attributed to a kick from a horse.

Chondro-Sarcoma of the Breast. (Mr. Mackellar.) 'Path. Soc. Trans.,' 1886, Mr. Battle.

The growth is in the main a soft sarcoma into which abundant hæmorrhage has occurred; but at one part it is constituted by a globular mass of cartilage about an inch and a half in diameter. This portion projects somewhat beyond the rest so as to destroy the symmetry of the tumour, and is, for the most part, not sharply demarcated off. The entire growth is nearly three inches in its longest diameter. From a woman seventy-three years of age.

Proliferous Cyst near the Anus. (Mr. Clutton.) With Plate borrowed by permission from the 'Transactions of the Pathological Society,' vol. xxxvii, 1886.

This was removed, after it had been a few weeks previously incised, from near the anus of a woman æt. 60.

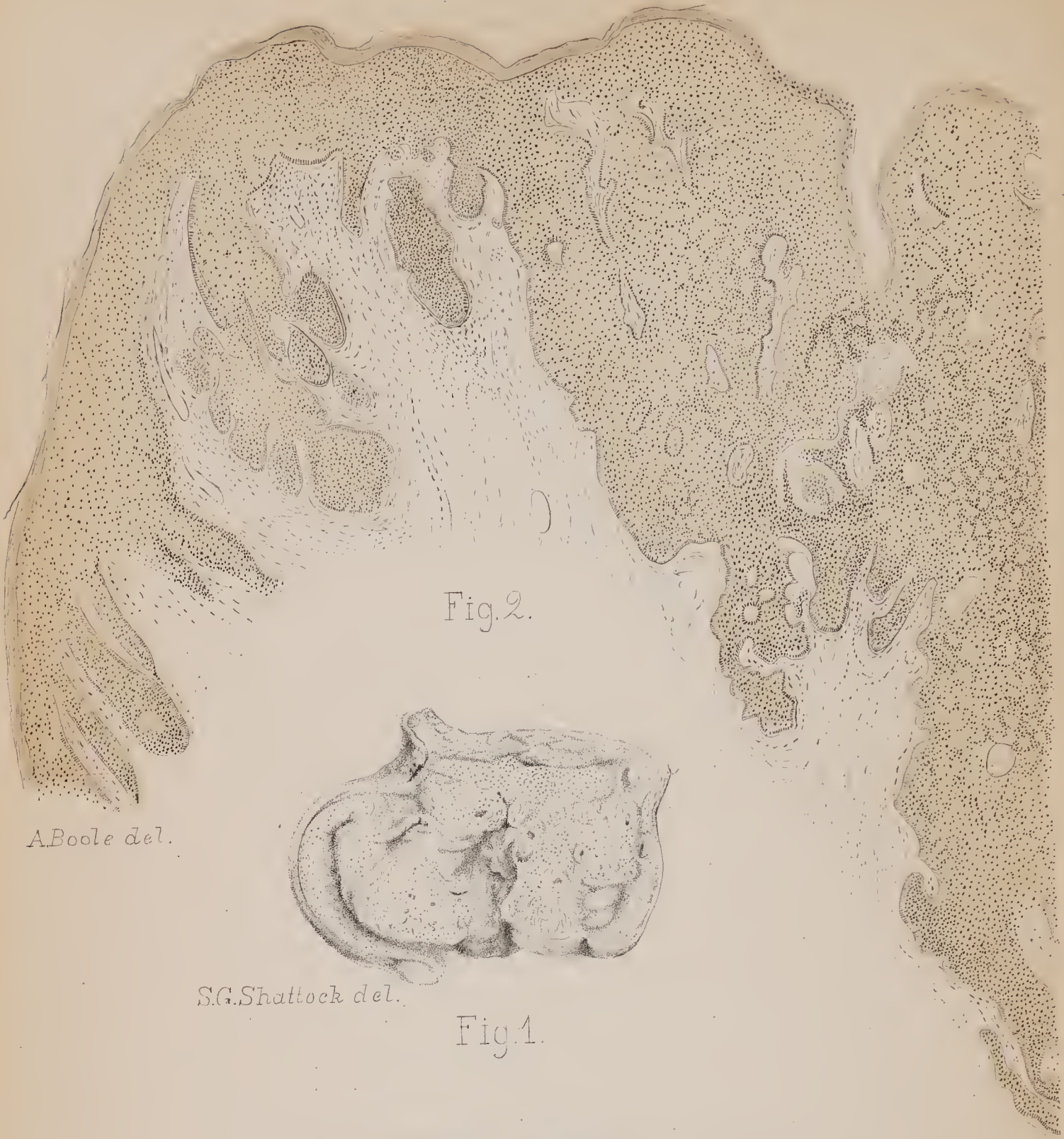
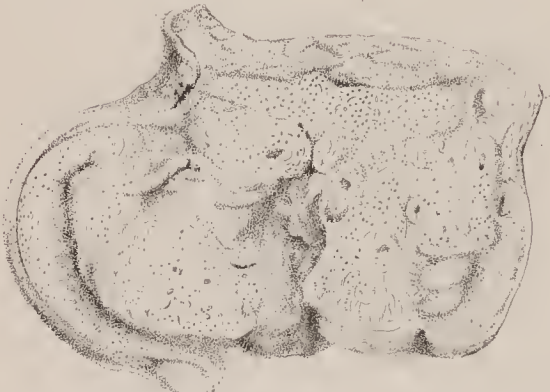


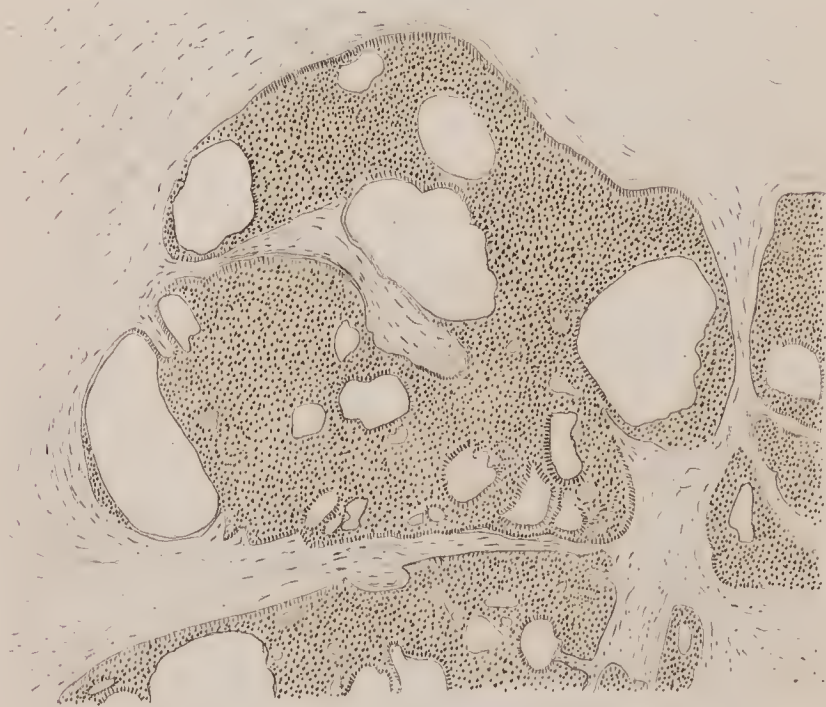
Fig. 2.

A. Boole del.



S. G. Shattock del.

Fig. 1.



A. Boole del.

Fig. 3.

Danielsson & Co, lith.

The section of the tumour, Plate XVI, fig.1, shows the remains of a cystic cavity into which a lobular or coarsely papillated growth projects, the latter being studded with minute cysts filled with a mucoid substance. The microscopical specimens have been taken from the part where the growth involves the skin, and include in the same sections the central part of the tumour, so that the transition from one to the other can be well studied.

In fig. 2 "the skin will be seen to the left (to quote Mr. Clutton's description) sending prolongations down from the rete Malpighii into the subcutaneous tissue, and on the right is a large mass of epithelial growth which seems to be of exactly the same nature but more fully developed. Each of the finger-like processes to the left is lined externally by a layer of columnar epithelium, and internally contains cells of a spheroidal type, but no lumen . . . the large mass of growth is composed of spheroidal epithelial cells of the same nature as those in the interior of the tubular prolongations from the skin, but it also contains a number of cavities, some . . . so small as only to be faintly indicated under a low power . . . they are in most cases lined by a layer of columnar epithelium, and contain mucus, appearing, therefore, to be the result of degenerative changes."

Fig. 3 shows some of the larger cystic spaces with their lining of columnar epithelium, and the openings of many variously sized processes leading from them.

The patient came under notice on account of some large sebaceous cysts of the scalp, which she had had for twenty years. The tumour near the anus had been noticed for two or three years; for some weeks it had increased in size and become very painful; on incision what appeared to be pus was evacuated. At first it diminished, but in the course of a few weeks increased in size and became more solid; it was freely movable on the deeper tissues, but connected with the skin by an open sinus resulting from the incision.

The unusual condition in this specimen lies in the character of and changes that have occurred in the epithelium. Except for these, it might have been regarded as a sebaceous cyst, from the interior of which a solid papillary growth had occurred.

Perhaps the only examples of epithelial tumours arising in connection with the epiblast, in which similar changes occur, are those that grow within the jaws, commonly the lower, and in which tumours the epithelial elements arise in connection with the involutions of epiblast that produce the enamel organ of the teeth; the cysts in such tumours are due to mucoid degeneration of the central cells of the columns, whilst the deep or peripheral persist as a columnar lining to the spaces.

Transmutations of epithelia, however, occur in the normal process of development. The œsophagus is at one period of foetal life lined with columnar ciliated epithelium, subsequently by stratified. In the case of internal hæmorrhoids, also, it has been shown that the portions which are habitually exposed by protrusion, come to have an epithelium resembling that of the skin, whilst the rest retains its columnar-celled investment.

As examples of columnar epithelium of epiblastic origin may be cited that lining the lower parts of the nasal fossæ, that of the central canal of the spinal cord, &c.

What is still more to the point is that the terminal portion of the rectum, though formed by an involution from the exterior, comes nevertheless to be lined with columnar epithelium. And perhaps this may be a clue towards explaining the difficulty which Mr. Clutton has insisted upon in his paper.

Is it that this cyst arose before birth as a dermoid cyst in connection with that portion of the epiblast which is invaginated towards the hind-gut; and that the epithelium over its outgrowths has thus the characters, not of the common epidermis, but characters like those normally acquired by the epiblast of the involuted process?

Or is it a simpler explanation, though of a similar kind, to suppose that the growth originated in the glandular structures described as existing in connection with the lowest part of the rectum, *i. e.* with that portion arising from the cutaneous invagination?

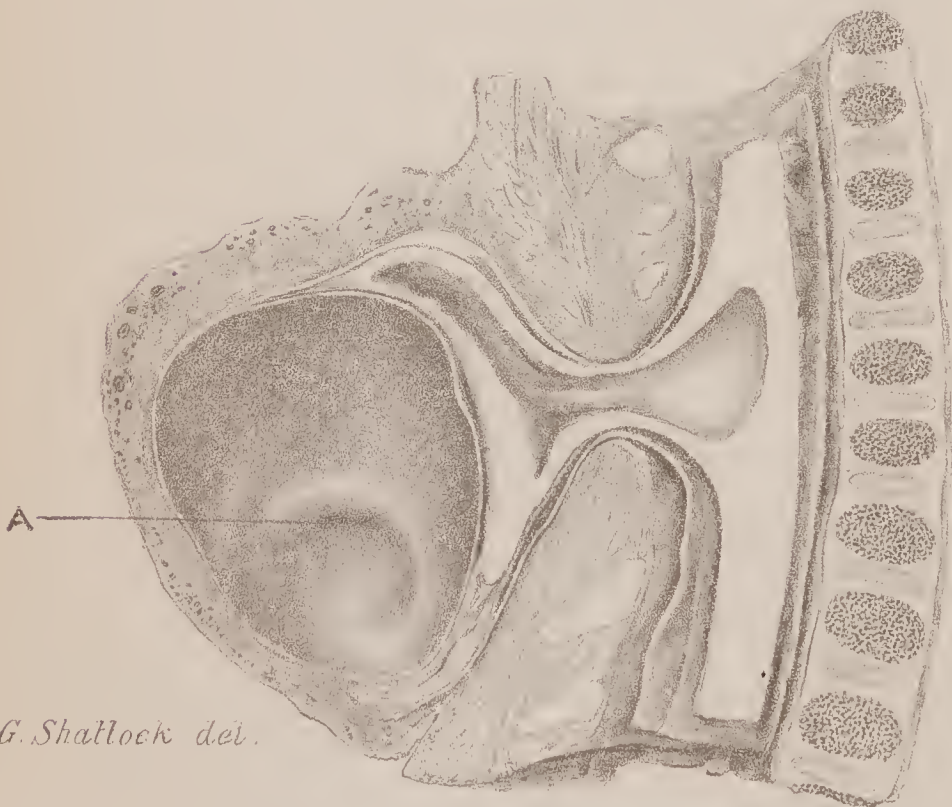


UNIVERSITY OF MICHIGAN



Fig.1.

From Photo.



S.G. Shallock del.

Fig.2.

Danielsson & Co, lith.

Spina Bifida in the Cervical Region. (Mr. Clutton.) Plate XVII, figs. 1 and 2. Borrowed by permission of the Council of the Clinical Society. 'Clin. Soc. Trans.,' vol. xix.

The arches of the fifth, sixth, and seventh cervical vertebræ are deficient.

The wall of the protrusion is formed by skin and an extension of the dura mater; the chief part of the swelling is constituted by a sac an inch and a quarter in diameter, from the left side of which a narrow passage, A, fig. 2, leads forwards towards the deficiency in the vertebral canal, and which perhaps communicated with the general subarachnoid space.

There is in addition, however, a protrusion of the posterior part of the spinal cord, the central canal of which is here much dilated; this forms a semi-lunar process applied to the front of the cyst just noticed.

There is a combination, therefore, of meningocele and syringo-myelocele.

The mother had had ten children, of whom the ninth was cured of a lumbro-sacral spina bifida by the injection of Morton's solution.

The child from which the present specimen was obtained was a male, two weeks of age. The protrusion was quite translucent, and the skin over it much attenuated. There was a distinct impulse in the tumour when the child cried. No paralysis existed.

From August 31st until October 24th, 1885, the swelling slowly diminished in size, the skin becoming loose and wrinkled, and the impulse wholly disappearing.

The child died on December 14th of diarrhœa and bronchitis.

Microphthalmos on the Left Side in a New-born Child.

There is a very small palpebral fissure, but the lids and lashes are perfectly represented though in miniature, and there is a conjunctival membrane reflected (on to) the surface of a diminutive globe.

The muscles of the globe are recognisable in the fat of the

orbit, the cavity of which is considerably smaller than that of the opposite side.

The globe is represented only by a tough sclerotic ; at least none of the normal structures were seen within the sclerotic after the section was made.

Prevertebral Abscess opening into the Œsophagus and Trachea.
(Mr. Clutton.)

The abscess measures about five inches vertically, and two transversely. It opens through the right side of the œsophagus by an aperture about three eighths of an inch in diameter, situated about an inch below the cricoid cartilage, and into the trachea by an opening about as large as a crowquill. The tissues around are indurated and adherent ; the interior of the cavity is in places remarkably flat and smooth. There is considerable œdema of the glottis.

From a man, æt. 24, subject to epileptic fits. On September, 1885, after a violent fit, he noticed pain and swelling in the neck. He was admitted on the following morning with high temperature, swelling in the neck, and very offensive bloody muco-purulent expectoration. He was quite unable to swallow. He very rapidly improved, and left the hospital at the end of September with a soft flaccid fluctuating swelling over the right carotid on a level with the larynx. This was not opened, since it was supposed to have made its way into some part of the air passage, and was steadily decreasing.

On October 6th no fluid could be detected in the swelling, but some crackling as if from the presence of air was felt on manipulation. This air could be squeezed out ; after coughing and straining the air again entered the sac.

13th.—Patient is fat and strong ; the swelling cannot be inflated by straining and coughing.

November 3rd.—Died after having been admitted ten days previously, spitting blood and offensive expectoration. After death septic broncho-pneumonia was found in both lungs.

The parts concerned in a Case ? of Extra-Uterine Fœtation.
(Dr. Gervis.) ‘Med.-Chir. Soc. Trans.,’ 1887.

There is a transverse aperture in the fundus uteri about two inches in length ; its edges are slightly undulatory and smoothly rounded. The right ovary has apparently been left behind in removing the specimen, the parts having been much matted together.

There were one or two fistulous communications between the intestine and the sac enclosing the fœtus, which was more or less encapsuled in Douglas’s pouch, and in a rotten macerated condition ; it lay with the skull downwards and the lower limbs flexed.

The patient, who was æt. 35, was admitted on November 19th, 1884.

She was married at the age of thirty and has had two children, both of which were born at the eighth month, the last in December, 1883. Before the second pregnancy she had a miscarriage. No instruments were used in either confinement ; the placenta was adherent on each occasion.

Present illness.—The catamenia ceased in May last ; in July she suffered from “ inflammation ” in the right side from which she never entirely recovered. The abdomen enlarged progressively as in pregnancy, as did the breasts.

Since July she has had more or less pain, which became very severe in the first week of September ; and a few days afterwards a sudden discharge of more than a pint of thick greenish fluid occurred from the vagina. The discharge has continued and about a fortnight before admission a piece of putrid “ skin ” came away. The pains preceding the first onset of the discharge in September were not so severe as those of labour, but of a bearing-down character. No shreds of membrane were noticed at first, nor was there any blood in the discharge ; the enlargement of the abdomen, which had progressively increased till then, disappeared.

On examination the external os was found soft and patent, admitting the index finger to the internal os, which was tightly closed.

On December 14th the ossified shaft of a foetal tibia came

away ; it would correspond with that of a foetus of five or six months.

18th.—The cervix was dilated and on passing the finger into the uterus the remains of a foetus could be distinctly felt. An attempt was made to remove it by means of a long ovum forceps, but failed ; the shafts of a femur and ulna were removed. There was considerable uterine hæmorrhage, and the patient was much exhausted. Death occurred on the following day.

Two views may be taken of this specimen ; one, that it is an extra-uterine foetation ; the other, that it is a ruptured uterus from which the foetus has escaped into the abdominal cavity.

From an examination of the specimen alone, the last view is that which commends itself, for the aperture in the present condition certainly resembles a rent.

Studied, however, with the history of the patient, the probabilities are in favour of the specimen being one of extra-uterine foetation in which the uterus has been perforated secondarily, in consequence of suppuration occurring around the dead foetus. If the last view is the right one the specimen is unique.

The history records a distinct crisis, a climax of pain, and pain to some degree of a “ bearing-down ” character, ending in the discharge per vaginam of greenish fluid, &c. It must have been at this period either (1) that the uterus was ruptured, or (2) that an extra-uterine sac discharged itself through the fundus uteri. On the first supposition the symptoms following this crisis would without doubt have been increased ; on the second supposition they would have been relieved. Now, the history testifies to the latter, and this may be sufficient to settle what would otherwise be a very nice question.

The parts after removal of the Ovary six months previously.
(Dr. Bristowe.)

The interest of this specimen lies in the condition of the pedicle after the application of a silk ligature. The ovary

was removed by Mr. Knowsley Thornton; it was the seat of a large cyst, from the interior of which there projected papillary sarcomatous outgrowths.

The patient died subsequently from general sarcoma infection, the lungs being completely strewn with tumours; there were others in the liver, and one in the brain.

The tissues forming the broad ligament are quite lax and normal. There is a narrow, well-formed band of adhesion, about an inch and a half in length, passing from the seat of ligature to the neighbouring part of the large intestine. The ligature could be felt on rolling the tissues between the fingers, otherwise there was no indication of its presence. On dissection it was found to be absolutely unchanged, closely invested with a delicate film of granulation-tissue.

Cysticerci of Brain. (Dr. Gulliver.)

This specimen was noticed in the preceding volume, and is reintroduced for the purposes of illustration. The figures 3—5 (Plate XIV) show three of the parasites in different situations: in one the cyst is shown projecting from the surface of the brain; in another, the parasite is exposed by longitudinal section; in the third, it lies in the tissue of the pia mater.

FRANCIS MASON, F.R.C.S.

A GREAT sorrow has come to St. Thomas's this summer. There has passed from it a cheery presence which brought brightness into ward and classroom as well as into social meetings. Our dear friend Francis Mason has been taken from us in the very glow and vigour of his life. It is assuredly fitting that this volume should contain some record of his career, some kind of portraiture of the man as he worked among us.

For the record of the main events of his short life of forty-nine years we are indebted to the notice in the 'Lancet' of June 12th, 1886, compiled by the loving care of his friend Dr. Toller.

The youngest son of the late Mr. Nicholas Mason, of Wood Street, Cheapside, he received his early education at the Islington Proprietary School under the head mastership of the late Bishop Jackson, and later on at the King's School, Canterbury. After matriculating at the London University he pursued his medical studies at King's College, London, of which he became an Honorary Fellow. "In the progress of his studies it was early observed that his aim was particularly directed towards cultivating the art and practice of surgery, and there are many who may remember his marked zeal and interest when performing the duties of dresser in the surgical wards of his hospital. He was prizeman in surgery of his year, and at that time was present at many of the private operations of the late Sir William Fergusson, by whom he was highly esteemed and whose intimacy and friendship he retained till the time of Sir William's death in 1877. He became Fellow of the Royal College of Surgeons in 1862, and at the date of examination

he was the youngest on the roll of Fellows. His first public hospital appointment was that of surgeon to the St. Pancras and Northern Dispensary. He then became consecutively assistant surgeon and lecturer on anatomy at the Westminster Hospital. When the new St. Thomas's Hospital was opened in 1871, Mr. Mason was among the distinguished men, hitherto connected with other hospitals, who were invited by the governors to join the medical staff. He was appointed assistant surgeon and also joint lecturer on anatomy. In both departments he won general regard and esteem by the thoroughness of his work. In 1876, on the retirement of Mr. John Simon, he became surgeon to the hospital, and when he resigned the lectureship in Anatomy he was made Lecturer on Practical Surgery. This Chair was eminently suited to the display of his remarkable technical skill and ingenuity. His teaching was most attractive, and his classes were much valued and abundantly attended. In his teaching in the wards, Mr. Mason was careful to train his class in the details of minor, as well as put before them the principles and practice of major surgery. He thus gave them just the kind of training which would be useful in ordinary practice. Many a man now in practice remembers gratefully the excellent instruction which he received from him.

He was a Fellow and Member of several of the learned Medical and Surgical Societies in London, and was Honorary Member of the South Hants Medical Society. He delivered the oration at the Medical Society of London in 1870 and was president in 1882, during which year of office he exhibited great interest in the work and success of the society, which efforts were rewarded by a largely increased number of members. He was Lettsomian Lecturer in 1878, the subject of the lecture being "The Surgery of the Face," and he was the author of a work entitled 'Harelip and Cleft Palate,' in which operations he acquired a large reputation both at home and abroad. He was also the author of several other papers and cases of surgical interest which have been published."

Mr. Mason was married in 1873, to Miss Jane Stephenson, the fifth daughter of the late Benjamin Stephenson, Esq., of 25, Tavistock Square. We need not do more than allude to the happiness of their married life as it must be well known

to all their friends who sympathise most sincerely with her who is left to mourn the loss of so devoted a husband.

Independent of medical qualifications there were in Mason's character many points which endeared him in a remarkable way to all his associates, and made him an invaluable companion in both the serious and light hours of life. To begin with, he was always cheerful and ready to take a kindly interest in the cares and troubles of his friends, always ready to advise and help. He was punctiliously strict in the discharge of all minor social duties, and showed himself to be always touched to helpfulness by the sight of suffering. What the influence of his large heart was may be best understood by the genuine grief manifested at the time of his death by his servants and poor dependents, and also by the loving regret which finds its expression amongst the Fellows and officials of the Medical Society of London, with which he was, as above noted, so importantly connected. As president and treasurer of that society, in his private life, and in the hospital, he displayed a remarkable care and accuracy in business matters. He had, in fact, a sense of order which made his accounts, his private room, and his wards models of neatness, and so many proofs of his aptitude for good arrangement.

To make his position as a surgeon more clearly appreciable it must be remembered that to these solid qualities he added the delicate perceptions of an artist. Professional qualifications apart, he was so richly endowed with musical talent and the sense of beauty in form and colour that if he had pursued art as his object in life he must have been highly distinguished. Out of this rare combination grew his eminence in surgery, which rested at once upon his manipulative skill in minor surgery. He appears to have aimed at carrying to the greatest possibility of perfection operations such as those about the face and mouth in which the deviation of a line on one side or the other would have courted failure, and in these, which were his favourite subjects of contemplation, he achieved an unique success.

To the accomplishment of these he brought to bear a minute knowledge of anatomy, which was also exhibited in his teaching in the anatomical theatre at St. Thomas's.



Apart from the importance of his professional position, the

man, as he showed himself to his friends in his own house, leaves a strongly-marked memory. One can bring back his kindly face at the dinner table, the lines of anxiety penetrating the glow of welcome as he gave himself to ensuring the enjoyment of each of his guests. One can remember him in the drawing room, now playing an accompaniment for a friend with easy sympathy, anon discoursing on his pictures, then singing a song full of pathos, presently breaking out as the evening advanced into a comic song with irresistible humour, and winding up with the Dead March in "Saul" with a basso accompaniment. Such an evening as it went by had in it of a truth more of fun than of seriousness, but to anyone who as the evening passed watched his host, there stood out as the active inspiration of the evening an entire lovingness. From the egg to the apple in the dining room, and later amid the music in the drawing room Mason could be seen thinking only of making his friends happy. His dinners were designed to please them and not to glorify himself. To this end was his playing, singing, and discourse afterwards, and in this we may recognise the keynote of his life, the note of sympathetic humanity.

W. M. O.

H. H. C.



REPORT OF THE OBSTETRICAL DEPARTMENT FOR 1885.

BY ROBERT CORY, M.A., M.D.

THE RESIDENT ACCOUCHEURS FOR THE YEAR WERE MESSRS. C. D. GREEN
G. D. JOHNSTON, R. E. ROUSE, AND J. E. KERSHAW.

FROM the 1st of January, 1885, to the 31st of December, 1885 (both dates inclusive), 2004 women were attended. Of these, 1985 resulted in single births, 18 in twin births, and 1 in a triplet birth. There were 9 cases of abortion among the single births and 1 among the twins.

In the following table the presentations of the children are classified :

	Among the single births.	Among the twin births.	In the case of triplets.	Total.
Vertex	1927	24	1	1952
Breech	28	1	—	29
Superior extremities, including the shoulder	2	1	—	3
Head and arm	1	—	—	1
Inferior extremities	8	3	2	13
Mixed, in which both inferior and superior extremities presented	4	1	—	5
Face	6	—	—	6
Abortion	9	2	—	11
Not stated	—	4	—	4
	1985	36	3	2024

Of the 2004 cases attended,

280 were 1st confinements.				56 were 10th confinements.			
320	„	2nd	„	25	„	11th	„
310	„	3rd	„	10	„	12th	„
259	„	4th	„	10	„	13th	„
204	„	5th	„	6	„	14th	„
196	„	6th	„	3	„	15th	„
137	„	7th	„	0	„	16th	„
105	„	8th	„	2	„	17th	„
81	„	9th	„	<hr/> 2004			

The following table shows the number of women confined at each consecutive year of life ; the youngest mother being 17, and the oldest 47 years of age :

At the age of	No. of women confined.	At the age of	No. of women confined.
17	...	33	...
18	...	34	...
19	...	35	...
20	...	36	...
21	...	37	...
22	...	38	...
23	...	39	...
24	...	40	...
25	...	41	...
26	...	42	...
27	...	43	...
28	...	44	...
29	...	45	...
30	...	46	...
31	...	47	...
32	..		
			Total

The FORCEPS were used in 56 cases. The reasons given for their use may be tabulated as follows :

Delay at brim of pelvis or during 1st stage of labour	17	{ 4 contracted pelves. 2 after coming heads. 1 face. 10 not stated.
Delay at outlet or 2nd stage of labour	37	{ 17 tedious primipara. 12 inertia. 3 occipito-posterior. 5 not stated.
To hasten labour	2	2 presentation of funis.

There were 23 cases of primiparæ among the 56 forceps cases. This gives a percentage of 41·0 ; the general percentage

of primiparæ being 14·0 to all cases. Rupture of the perineum took place in 3 out of the 56 cases, all of which were 1st confinements.

In 11 of the forceps cases the children were stillborn, but only 7 of these were uncomplicated cases.

CASES OF VERSION.

Podalic version was resorted to in 6 cases, 1 for contracted pelvis, 3 for presentation of shoulders and arms, 1 for placenta prævia, 1 for superior extremity (left elbow) ; 5 of the children were stillborn, and 1 child only lived. This one had the forceps applied to its after-coming head.

PLACENTA PRÆVIA.

Only 1 case of placenta prævia is reported.

No.	Age.	Confinement.	Sex of child.	Result to Child.	Treatment.	Result to Mother.
466	25	3rd	M.	Stillborn	Barnes's bag version	Recovered.

The BREECH presented in 28 cases among the single births, which gives a proportion of 1 in every 72 births. In 16 of these cases the children were stillborn, which is equivalent to a death-rate of 57·14 per cent. among the infants.

Only 2 cases of maternal deaths occurred during the year. The following table gives particulars :

No.	Age.	Confinement.	Sex of child.	Result to child.	Date of death after childbed.	Causes.
694	35	8th	F.	Stillborn	3 days	Pneumonia. Died in hospital.
1358	24	1st	F.	„	17 hours	Septicæmia.

OF THE CHILDREN.—The number of children born among 2004 women attended during the year was 2024 ; there

being 18 cases of twin births and 1 case of triplets. Of these, 1061 were males, and 963 were females.

There were 101 stillbirths, or 1 stillbirth in 19·8 labours, *i.e.* 4·9 per cent.

The characters of the labours in which the stillbirths occurred are given below :

Natural labours, including cases of intra-uterine maceration .	52
Abortions	11
Forceps (uncomplicated cases)	7
Breech	16
Placenta prævia	1
Twins	8
Presentation of lower extremities	1
Prolapsed funis	5
	<hr/> 101

The following table gives particulars of the cases of multiple births :

No.	Age of mother.	No. of confinement.	Date of birth.	Sex.		Result to mother.	Result to children.		Presentations.		Condition of placenta.
				1st.	2nd.		1st.	2nd.	1st.	2nd.	
1958	35	8	Jan. 1	M.	F.	L.	L.	L.	Head	Hand and foot	N. S.
2296	34	7	Jan. 24	M.	F.	L.	L.	L.	Natural	Natural	„
2371	33	8	Jan. 13	M.	F.	L.	L.	L.	„	„	„
40	19	2	Jan. 7	M.	F.	L.	S.	S.	N. S.	N. S.	„
171	20	2	March 8	M.	F.	L.	S.	S.	„	„	„
348	32	6	April 22	M.	M.	L.	L.	L.	Feet	Feet	„
395	25	2	April 18	F.	M.	L.	L.	L.	Natural	Natural	„
587	26	1	June 5	M.	F.	L.	L.	S.	„	„	„
642	36	7	March 26	M.	M.	L.	S.	S.	N. S.	N. S.	„
949	32	6	Aug. 23	M.	M.	L.	L.	S.	Head	Breech	„
999	25	3	Aug. 20	F.	F.	L.	L.	L.	„	Head	„
1156	30	5	Sept. 20	F.	F.	L.	L.	L.	Feet	Hand	„
1290	21	1	Nov. 11	M.	F.	L.	L.	L.	Natural	Natural	„
1324	25	3	Oct. 3	M.	F.	L.	S.	L.	„	„	Single
1406	30	3	Sept. 25	F.	F.	L.	L.	L.	„	„	N. S.
1431	20	1	Oct. 9	M.	M.	L.	L.	L.	„	„	Single
20	23	3	Nov. 21	M.	F.	L.	L.	L.	„	„	„
1888	32	6	Dec. 30	M.	M.	M.	L.	L. L. L.	Head, 2nd feet, 3rd head		N. S.
981	28	6	June 13	M.	M.	L.	L.	L.	Natural	Natural	„

MEDICAL REPORT.

1885.

BY WALTER BAUGH HADDEN, M.D.LOND., M.R.C.P.,
MEDICAL REGISTRAR.

TABLE I.—*General Statement of Medical and Surgical Patients.*

		Males.		Females.		Total.	
Number of patients in Hospital, Jan. 1st, 1885	...	198	...	188	...	386	
" " " Dec. 31st, 1885	...	201	...	179	...	380	
" " discharged or died during 1885 :							
		Males.		Females.		Total.	Rate per cent.
Cured	...	1493	...	1157	...	2650	59·16
Relieved	...	631	...	505	...	1136	25·36
Unrelieved or other causes	...	104	...	130	...	234	5·22
Died	...	280	...	179	...	459	10·24
		2508		1971		4479	100·
Average number of days of each medical patient's stay in hospital—							30·62.
" " surgical				"			30·4.

TABLE II.—*General Medical Statement.*

Number of Medical Beds	...	...	...	...	...	192	
		Males.		Females.		Total.	
Number of patients in Medical Wards, Jan. 1st, 1885	...	71	...	93	..	164	
" " admitted during the year 1885	...	880	...	978	...	1858	
Total	...	951	...	1071	...	2022	
" " in Medical Wards, Dec. 31st, 1885...	65	...	93	...	158		
" " treated to a termination during 1885	886	...	978	...	1864		
" " discharged or died during 1885 :							
		Males.		Females.		Total.	Rate per cent.
Cured	...	437	...	512	...	949	50·91
Relieved	...	201	...	237	...	438	23·49
Unrelieved or other causes	...	81	..	102	...	183	9·81
Died	...	167	...	127	...	294	15·77
Total	...	886	...	978	...	1864	100·
Average number of days of each patient's stay in hospital—							30·62.

Acute rheumatism	152	71	81	...	7	44	54	26	16	5	...	2	47	75	26	2	...	...	...	...	71	78	...	...	1	...	2	7 readmissions. Hyperpyrexia in fatal cases.
Subacute rheumatism.	7	3	4	...	...	...	...	1	4	2	...	...	1	3	1	2	...	...	...	...	3	4	...	...	...	...	...	...
Chronic articular rheumatism	6	2	4	...	...	...	...	1	1	4	...	...	...	...	2	3	1	...	...	...	...	...	2	3	...	1	...	...
Muscular rheumatism.	8	3	5	...	...	...	...	3	3	1	1	...	...	1	2	4	1	...	...	...	...	2	5	1	...	...	...	4 cases of pleurodynia; 3 of lumbago.
Rheumatic pains	13	5	8	...	...	...	...	5	3	4	1	...	...	2	3	5	3	...	...	...	5	6	...	1	...	1	...	...
Gonorrhoeal rheumatism	2	1	1	...	...	...	...	...	2	...	...	...	...	...	...	1	...	...	...	...	1	1	...	...	...	...	...	...
Gout . . .	10	8	2	...	...	...	...	...	5	...	4	1	...	...	4	2	3	...	1	...	...	4	...	4	2	...	...	1 readmission.
Myxedema	6	1	5	...	...	...	...	...	2	4	...	...	...	2	...	1	2	1	...	...	...	...	1	2	...	1	...	1 readmission, fatal case.
Diabetes mellitus	8	6	2	...	...	...	...	2	3	2	...	1	...	...	...	2	2	3	...	1	...	...	3	...	1	2	...	1 readmission, fatal case.
„ insipidus	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Purpura . . .	5	4	1	...	...	...	...	1	4	...	...	...	...	1	1	2	...	1	...	...	4	1	...	...	...	...	...	1 readmission; 1 a case of purpura urticans.
Pernicious anæmia	2	1	1	...	...	...	...	...	...	1	...	...	...	...	...	1	1	...	...	...	...	...	1	...	...	...	...	...
Anæmia . . .	16	1	15	...	...	...	...	3	12	...	1	...	...	...	3	10	2	1	...	...	...	14	...	1	1	...	...	...
Leucocythæmia .	1	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Lymphadenoma .	3	2	1	...	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...
General tuberculosis .	5	...	5	3	2	...	...	...	...	...	...	...	...	2	1	2	...	...	...	...	...	...	...	...	...	...	5	...
II. DISEASES OF THE SKIN																												
Erythema . . .	2	1	1	...	...	...	...	1	...	...	1	...	...	1	1	...	...	...	...	...	...	1	1	...	...	...	...	...
Erythema nodosum	1	1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Psoriasis . . .	2	2	...	...	...	...	...	1	1	...	...	...	...	...	1	1	...	...	...	...	2	...	...	...	...	...	...	...
Herpes . . .	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Pemphigus . . .	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...
Eczema . . .	8	3	5	...	...	...	...	1	...	1	4	1	...	1	1	3	...	3	...	...	...	2	3	1	1	...	1	...
Ecthyma . . .	1	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Prurigo . . .	1	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
III. DISEASES OF THE RESPIRATORY ORGANS.																												
Acute laryngitis	9	6	3	2	1	1	2	1	2	1	2	...	...	3	3	2	1	...	...	...	6	3	...	...	...	...	...	...
Syphilitic disease of larynx	1	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	Congenital.

Contracted erysipelas.
1 after erysipelas.

IV. DISEASES OF THE ORGANS OF CIRCULATION.													
Pericarditis	3	1	2	...	1	2	...	...	...	1	1	...	1 Double pleurisy and acute endocarditis in fatal case.
Adherent pericardium	4	1	3	...	1	1	2	...	...	1	2	...	1 readmission (see Pericarditis). Double pleurisy in fatal case.
Angina pectoris	1	1	...	...	...	...	1	...	...	1	...	...
1. <i>Heart.</i>													
Dilatation	1	1	...	...	...	1	...	...	...	1	...	...	Dilatation of all the cavities, no valvular disease, general dropsy.
2. <i>Valvular disease.</i>													
Mitral	62	35	27	...	1	21	15	10	7	4	4	7	23 18 6 1 6 8 5 readmissions. Tricuspid disease in 2. No P.M. in 5.
Aortic	17	15	2	...	...	3	3	5	5	1	5	4	7 2
Mitral and aortic	23	15	8	...	11	5	1	3	3	...	4	8 5	7 3 1 readmission. Tricuspid disease in 5. No P.M. in 2.
3. <i>Vessels.</i>													
Thoracic aneurysm	15	13	2	...	...	2	3	4	5	1	1	4 1 3 3 1 2	3 probably innominate, 1 being a readmission.
Arterial and venous obstruction	1	1	...	...	...	...	...	...	1	...	...	1	
Phlebitis	3	1	2	...	...	1	1	1	...	...	1	2	Femoral vein affected in all.
V. DISEASES OF THE DUCTLESS GLANDS.													
Exophthalmic goître	1	...	1	...	...	1	...	...	...	...	1	...	Adrenals atrophied from interstitial fibrous change.
Addison's disease	1	...	1	...	...	...	1	...	...	...	...	...

Constipation . . .	34	18	16	4	6	7	8	3	1	1	4	9	15	6	4	...	...	...	...	17	15	1	1	...	...	...	...	1 readmission.
Intestinal obstruction . . .	14	10	4	3	...	3	...	3	1	1	2	6	2	1	2	2	1	...	...	4	1	...	1	...	...	5	3	3 were intussusception; 1 stricture; 1 internal strangulation; 4 malignant; 1 due to gall-stone; 1 due to dilatation of sigmoid flexure.
Perityphlitis . . .	8	6	2	...	...	3	5	...	...	...	...	...	3	...	4	1	...	...	...	6	1	...	1	...	...	...	...
Tubercular ulceration of intestine . . .	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Perforation of vermiform appendix . . .	3	2	1	...	1	1	1	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	2	1	1	Concretion found in 2 cases.
2. <i>Peritoneum.</i>																												
Acute peritonitis . . .	3	...	3	...	...	1	1	...	...	1	...	1	2	...	...	...	...	...	...	...	1	...	...	...	...	...	2	No local cause discovered in 1. No P.M. in 1.
Tubercular peritonitis . . .	8	3	5	2	1	1	3	1	...	...	...	...	...	...	3	5	...	...	...	...	...	2	1	...	1	3	3	Abscess in 2.
3. <i>Liver.</i>																												
Cirrhosis . . .	10	6	4	...	...	...	...	3	2	4	1	...	1	4	4	...	...	1	...	...	...	3	4	...	...	3	...	1 readmission. No P.M. in 1. Cause doubtful. Enlarged spleen and xanthelasma in 1.
Enlargement . . .	2	1	1	...	...	...	1	...	...	1	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...
Hydatid . . .	3	3	...	...	...	1	2	...	...	...	...	...	...	...	1	2	...	...	...	2	...	1	...	...	...	...	...	1 readmission. 1 suppurating.
Malignant disease . . .	3	2	1	...	...	...	...	1	1	...	1	...	1	...	1	...	...	...	...	...	...	...	...	...	2	1	1	1 scirrhus.
Syphilitic disease . . .	4	1	3	...	...	1	...	...	2	1	...	...	...	...	2	...	...	2	...	1	2	...	1	...	...	...	...	1 congenital syphilis.
Rupture . . .	1	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	Ruptured left lobe from injury, peritonitis.
Obstructive jaundice . . .	11	4	7	3	...	...	2	1	3	1	1	1	5	4	...	1	...	...	...	3	5	...	1	...	...	1	1	Of non-fatal cases, 4 probably catarrhal; 5 due to gall-stones.
4. <i>Various.</i>																												
Abdominal tumour . . .	20	6	14	...	...	...	...	5	6	8	1	1	2	5	10	2	...	...	...	...	...	1	3	...	5	6	1	1 readmission (see Ovarian Tumour). No P.M. in 4.
" cyst . . .	2	...	2	...	...	...	2	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	...	...	...	...	...	Readmission. Probably hydatid.

TABLE III—continued.

DISEASE.	Number of cases.		Age.								Duration of residence.								Cured.	Re-lieved.		Unre-lieved.	Died.	REMARKS.				
			Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Under 1 week	Wks. 1-2	Wks. 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12							Above 1 year			
	Total.	M.	F.																M.	F.	M.	F.	M.		F.			
VI. DISEASES OF THE DIGESTIVE ORGANS.																												
4. Various—continued.																												
Ascites . . .	1	...	1	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	Enlarged spleen. Cause doubtful.
Abdominal pain . .	7	4	3	1	1	1	2	...	1	...	...	...	...	...	3	1	...	2	1	...	...	...	...	...	...	...	Enlarged spleen in 1; vari- cella in 1, not contracted in hospital.	
VII. DISEASES OF THE GENITO - URINARY SYSTEM.																												
Acute nephritis . .	12	9	3	5	2	3	...	2	...	...	1	...	7	1	1	2	...	...	...	6	2	1	...	...	1	2	...	8 probably scarlatinal. No P.M. in 1.
Chronic nephritis . .	62	34	28	1	...	3	12	20	10	8	8	9	7	18	12	10	4	2	...	...	...	19	11	4	5	11	12	1 readmission. No P.M. in 11. Of cases examined P.M., 7 showed mainly interstitial change, and 5 tubular.
Lardaceous kidneys . .	1	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Liver also lardaceous. Pelvic abscess.
Malignant disease of kidneys	2	2	...	1	...	...	...	...	1	...	...	...	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Renal colic . . .	4	...	4	...	...	3	1	...	...	...	...	1	2	...	1	...	...	...	...	1	...	...	3	...	...	...	...	1 readmission.
Pyonephrosis . . .	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	Probably due to calculus in 2.
Hæmaturia . . .	4	2	2	1	...	1	1	...	1	...	...	...	...	2	2	...	...	...	...	1	2	1	...	...	...	...	...
Oxaluria . . .	1	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...

[illegible]

TABLE III—continued.

DISEASE.	Number of cases.		Age.							Duration of residence.							Cured.		Re-lieved.		Unre-lieved.		REMARKS.						
	Total.	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Under 1 week	Wks. 1-2	Wks. 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above 1 year	M.	F.		M.	F.	M.	F.	M.	F.
VIII. DISEASES OF THE NERVOUS SYSTEM— continued.																													
Ophthalmoplegia externa	1	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	Epileptiform attacks and paralysis of abductors of larynx. Contracted facial erysipelas. For another case, see under Hemiplegia. Ear disease in one.
Vertigo . . .	2	2	...	...	...	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	Improvement with continuous current.
Sunstroke . . .	1	1	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Paralysis agitans . . .	2	1	1	...	...	...	1	1	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Athetosis . . .	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Choreiform movements	2	1	1	...	...	...	1	1	...	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Bulbar paralysis. . .	2	1	1	...	...	...	...	...	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
General paralysis of insane	5	5	...	...	...	1	3	1	...	...	...	...	1	4	...	...	...	...	...	...	...	3	...	2	...	...	...	...	...
Other mental disorders	14	5	9	...	4	4	2	2	1	1	2	5	2	2	3	...	...	...	...	...	...	1	1	4	8	...	...	...	1 after pneumonia; 1 after epilepsy; 1 after hemiplegia.
Chorea . . .	32	7	25	...	8	19	5	...	...	...	2	5	7	16	2	...	...	...	...	...	5	22	2	3	...	...	...	...	Pregnancy in 3.
Hysteria . . .	34	3	31	...	14	6	7	6	1	...	3	10	4	12	3	2	...	...	...	...	3	20	...	8	...	3	...	...	3 cured by massage. 3 re-admissions.
Epilepsy . . .	16	10	6	4	2	1	3	2	...	2	6	6	4	...	...	...	...	...	...	...	5	1	5	...	...	...	...	...	4 cases of infantile convulsions. The cases "cured" were admitted in the fit.
Laryngismus stridulus	1	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...

[illegible]

TABLE III—continued.

DISEASE.	Number of cases.			Age.							Duration of residence.							Cured.		Re-lieved.		Unre-lieved.		Died.	REMARKS.					
	Total.	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Wks. 1-2	Wks. 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above 1 year	M.	F.	M.	F.			M.	F.	M.	F.	
IX. POISONING — continued.																														
	Belladonna .	8	6	2	2	4				2			8								6	2							An opium taker.	
	Opium .	1		1				1							1							1								
	Carbolic acid .	2		2		1		1				1										2								
	Hydrochloric acid .	2	1	1	1		1						2								1	1							Probably a narcotic poison.	
Doubtful .	1		1				1					1									1									
X. SURGICAL AND MISCELLANEOUS.																														
	Debility .	20	4	16	2		3	5	3	4	2	1	3	6	10	1					3	14	1	1			1			Nothing definite found P.M. in fatal case.
	Inanition .	9	6	3	8							1	1	1	1	5	1				5						2	1		
	Syncope .	2	1	1		1				1			1								1	1								
	Obscure oedema .	2	1	1	1	1							1													1				
Retention of urine .	3	1	2			2				1		2				1					1	2								1 transferred from surgical ward.
Various and unclassified	35	13	22	6	2	4	12	2	6	2	1	9	11	7	5	2	1				5	14		4	4	4	4	4	4	Of fatal cases, 1 was a tumour of base of skull, 1 a case of fractured skull with hæmorrhage, 1 an abscess of neck, and 1 was obscure. 1 transferred to surgical ward.
Not reported on .	4	2	2	4								4															2	2	No P.M. in any of the cases.	

[illegible]

TABLE IV.—*Table of Mortality.*

DISEASE.	Total.		Age.									Mor- tality per cent.
	No. dis- charged.	No. died.	Under 5	5-10	-20	-30	-40	-50	-60	-70	Above 70	
1. GENERAL DISEASES.												
Scarlet fever	7	1	...	...	...	1	...	...	...	...	...	...
Typhus fever	1	1	...	...	...	1	...	...	...	...	...	...
Enteric fever	43	11	...	1	2	7	1	...	...	...	...	20·3
Erysipelas	29	2	...	...	...	...	2	...	...	...	...	6·4
Diphtheria	27	29	24	3	1	1	...	...	...	...	...	51·7
Hydrophobia . . . . .	...	1	...	1	...	...	...	...	...	...	...	...
Acute rheumatism	150	2	...	...	...	...	1	...	1	...	...	1·3
Myxœdema	4	2	...	...	...	...	...	2	...	...	...	...
Diabetes mellitus	8	2	...	...	...	1	1	...	...	...	...	...
Leucocythæmia . . . . .	...	1	...	...	...	1	...	...	...	...	...	...
Lymphadenoma	1	2	...	...	1	...	1	...	...	...	...	...
General tuberculosis . . . . .	...	5	3	2	...	...	...	...	...	...	...	...
2. DISEASES OF THE RESPIRATORY ORGANS.												
Tumour of larynx	3	1	1	...	...	...	...	...	...	...	...	...
Bronchitis	60	15	5	...	...	2	2	2	1	2	1	20
Broncho-pneumonia	18	4	4	...	...	...	...	...	...	...	...	18·1
Croupous pneumonia	48	15	2	...	...	5	4	2	1	1	...	23·8
Phthisis	38	29	3	...	...	3	10	7	2	4	...	43·2
Gangrene of lung . . . . .	...	1	...	...	...	...	...	1	...	...	...	...
Collapse of lung . . . . .	...	1	...	...	...	1	...	...	...	...	...	...
Pleurisy	38	1	...	...	...	...	1	...	...	...	...	2·5
Empyema	11	4	2	...	...	1	1	...	...	...	...	26·6
Pyo-pneumothorax . . . . .	...	1	...	...	...	1	...	...	...	...	...	...
Intrathoracic tumour . . . . .	...	5	...	...	1	...	2	2	...	...	...	...
3. DISEASES OF THE ORGANS OF CIRCULATION.												
Pericarditis	2	1	...	...	1	...	...	...	...	...	...	...
Adherent pericardium	3	1	...	...	1	...	...	...	...	...	...	...
Dilatation of heart . . . . .	...	1	...	...	...	...	1	...	...	...	...	...
Mitral	48	14	...	...	4	6	2	...	1	1	...	22·5
Aortic	8	9	...	...	...	1	1	4	2	1	...	52·9
Mitral and aortic	13	10	...	...	3	2	2	2	1	...	...	43·4
Thoracic aneurysm	13	2	...	...	...	...	...	1	1	...	...	13·3
4. DISEASES OF THE DUCTLESS GLANDS.												
Addison's disease . . . . .	...	1	...	...	...	...	1	...	...	...	...	...

TABLE IV—continued.

DISEASE.	Total.		Age.									Mor- tality per cent.
	No. dis- charged.	No. died.	Under 5	5-10	-20	-30	-40	-50	-60	-70	Above 70	
5. DISEASES OF THE DIGESTIVE ORGANS.												
Malignant disease of pharynx . . .	2	2	...	...	...	...	...	1	1	...	...	...
Malignant disease of œsophagus . . .	1	4	...	...	...	...	1	...	2	1	...	...
Gastric ulcer	9	1	...	...	...	...	...	1	...	...	...	10
Malignant disease of stomach . . .	2	5	...	...	...	...	1	3	...	1	...	...
Diarrhœa	9	2	2	...	...	...	...	...	...	...	...	18.1
Gastro-intestinal catarrh	5	1	1	...	...	...	...	...	...	...	...	...
Dysentery	2	1	...	...	...	...	1	...	...	...	...	...
Intestinal obstruction	6	8	1	...	2	...	3	...	...	2	...	...
Tubercular ulceration of intestine . . .	...	1	...	...	...	...	...	...	1	...	...	...
Perforation of vermiform ap- pendix . . . . .	...	3	...	1	1	1	...	...	...	...	...	...
Acute peritonitis	1	2	...	...	1	...	...	...	1	...	...	...
Tubercular peritonitis	4	4	...	1	...	2	1	...	...	...	...	...
Cirrhosis of liver	7	3	...	...	...	...	2	...	1	...	...	30
Malignant disease of liver . . . . .	...	3	...	...	...	...	1	1	...	1	...	...
Rupture of liver . . . . .	...	1	...	...	...	...	...	1	...	...	...	...
Obstructive jaundice	9	2	1	...	...	...	...	1	...	...	...	18.1
Abdominal tumour	9	11	...	...	...	...	3	4	4	...	...	5.5
6. DISEASES OF THE GENITO- URINARY SYSTEM.												
Acute nephritis	10	2	1	...	1	...	...	...	...	...	...	16.6
Chronic nephritis	39	23	...	...	...	4	5	6	4	3	1	37
Lardaceous kidneys . . . . .	...	1	...	...	...	...	1	...	...	...	...	...
Malignant disease of kidneys	1	1	...	...	...	...	...	...	1	...	...	...
7. DISEASES OF THE NERVOUS SYSTEM.												
Acute meningitis . . . . .	...	2	...	1	...	...	...	1	...	...	...	...
Tubercular meningitis . . . . .	...	5	2	2	...	1	...	...	...	...	...	...
Acute cerebro-spinal meningitis . . .	...	3	...	1	1	...	...	...	...	1	...	...
Hemiplegia	22	1	...	...	...	...	...	...	1	...	...	4.3
Cerebral hæmorrhage . . . . .	...	2	...	...	...	...	...	1	...	...	1	...
Cerebral softening . . . . .	...	1	...	...	...	...	...	...	1	...	...	...
Intracranial tumour	15	7	...	1	...	1	1	1	3	...	...	31.8
Chronic hydrocephalus . . . . .	...	1	1	...	...	...	...	...	...	...	...	...
Paraplegia	17	1	...	...	1	...	...	...	...	...	...	5.5
Acute myelitis . . . . .	...	2	...	...	1	1	...	...	...	...	...	...
Tumour of cord . . . . .	...	1	...	...	...	...	...	...	1	...	...	...
8. SURGICAL AND MISCELLANEOUS.												
Inanition	8	1	1	...	...	...	...	...	...	...	...	...
Tumour of base of skull . . . . .	...	1	...	...	...	1	...	...	...	...	...	...
Fractured skull . . . . .	...	1	1	...	...	...	...	...	...	...	...	...
Abscess of neck . . . . .	...	1	...	...	...	1	...	...	...	...	...	...
Obscure . . . . .	...	1	...	...	...	1	...	...	...	...	...	...
Not reported on . . . . .	...	4	4	...	...	...	...	...	...	...	...	...
9. DISEASES OF THE FEMALE GENERATIVE ORGANS.												
Ovarian tumour	7	3	...	...	...	...	1	1	...	1	...	30

TABLE V.—*Cases of Infectious Diseases originating in Hospital.*

Initials.	Sex.	Age.	Disease for which admitted.	Disease originating in hospital.	Date of attack.	Result.	Remarks.
H. C.	M.	9	Necrosis of femur	Measles	March 11	C. April 9	From Albert Ward.
E. R.	F.	30	—	Varicella	July 23	C. October 17	Nurse. Contracted from a patient in Magdalen Ward.
W. M.	M.	21	Burn	Scarlet fever	March 3	C. March 25	From Albert Ward.
G. H.	M.	18	Keloid	"	April 17	C. May 11	Ditto.
H. N.	F.	19	—	"	" 29	C. " 20	Ward-maid.
A. C.	M.	7	Hip disease	"	June 11	C. August 12	From Clayton Ward.
C. T.	M.	15	Cleft palate	"	" 26	C. July 23	From Edward Ward.
R. L.	M.	24	—	"	November 23	D. November 30	House surgeon.
F. L.	F.	5	—	Varicella	?	C. September 24	From Victoria Ward.
M. R.	F.	5	Disease of hip	"	?	C. November 9	Ditto.
C. H.	F.	21	—	Enteric fever	July 25	C. September 19	Kitchen-maid.
E. B.	F.	53	Pemphigus	Erysipelas	February 5	C. February 14	From Charity Ward.
R. R.	M.	46	Ophthalmoplegia externa	"	" 28	C. March 25	From George Ward.
F. H.	F.	6	Disease of knee	Diphtheria	?	C. " 16	From Victoria Ward.
M. O.	M.	2	Papilloma of larynx	"	?	D. October 3	Ditto.
G. H.	M.	5	Rickets	"	?	C. November 21	From Albert Ward.
A. W.	M.	$\frac{8}{12}$	Bronchitis	"	?	D. December 6	From Victoria Ward.
S. B.	F.	3	Empyema	"	December 15	D. " 25	Ditto.
A. H.	F.	3	Bronchitis	Pertussis	January 10	C. March 18	Ditto.
K. W.	F.	2	—	"	" 12	C. February 1	Ditto.
A. S.	M.	4	Disease of hip	"	" 28	C. " 25	Ditto.

SPECIAL ANALYSES AND ABSTRACTS.

I.—ENTERIC FEVER.

Selected fatal cases.

(1) *Parotid bubo*.—Male, æt. 20, admitted February 27th. Illness began eleven days before admission with malaise.

On admission temp. was $101\cdot6^{\circ}$. He had headache and constipation. There were spots, but no obvious enlargement of spleen. Later, he had diarrhœa and passed blood. He became very anæmic, and on March 24th two painful swellings appeared in the parotid regions. Four days later the buboes were incised and pus evacuated. Died on March 30th.

Post-mortem examination.—Peyer's patches in the lower part of ileum were reticulated from previous ulceration. Solitary glands in the large intestine were swollen, and there was a small, round, follicular ulcer in the cæcum. On both sides of the face and neck there were carbuncular swellings, consisting of honeycombed connective tissue with pus in its meshes.

(2) *Ulceration of larynx*.—Male, æt. 22, admitted October 13th. Said to have been ailing for a month.

On admission temp. was $103\cdot6^{\circ}$, spleen not felt, bowels confined. Two days later spots were found.

On October 26th an abscess was detected over the thyroid, and next day it burst. On November 6th and 7th he had severe hæmorrhage from bowel, and on the 9th he died.

Post-mortem examination.—Numerous clean-cut ulcers in small intestine most in process of healing. Large intestine contained dark blood, but was not ulcerated. Spleen enlarged and soft. There was superficial ulceration at the posterior attachment of the right ventricular band.

Female, æt. 22, admitted June 29th.

On admission temp. $103\cdot6^{\circ}$, diarrhœa, enlarged spleen, and spots. Later, the stools contained much blood, and she became very delirious. Died July 11th.

Post-mortem examination.—Numerous typhoid ulcers in all stages. Spleen large and firm. Larynx showed well-marked ulceration posteriorly, just above the ventricular bands. Superior cornu of thyroid cartilage on left side was laid bare.

Female, æt. 9, admitted November 25th. Vomiting and diarrhœa ten days ago.

On admission temp. 102.2° , enlarged spleen, diarrhœa, and spots. Died with symptoms of peritonitis on December 1st.

Post-mortem examination.—Numerous ulcers, nearly all healing, perforation of one of the highest. Spleen large and firm. Just above the posterior extremity of the left vocal cord there was a deep ulcer, the orifice leading to it being rather irregular and large.

II.—ACUTE RHEUMATISM (hyperpyrexia).

Female, æt. 57, admitted January 31st. Previous attack of rheumatism at the age of eleven. Had had pains in the joints for six or seven years. Present attack came on two weeks ago.

On admission the wrist-, ankle-, and finger-joints were mainly affected. The terminal phalangeal joints were deformed and bent to the ulnar side. Temp. 101.2° . There was a good deal of delirium and tremulousness, which increased towards the end. The temp. had never risen above 103° up to February 11th, but on the evening of that day it was 104° . On the 12th it varied between 103.4° and 107° , when she died.

Post-mortem examination.—Heart normal, liver fatty, spleen atrophied, brain healthy. Knee-joints contained an excess of opaque synovial fluid with thick masses of lymph; no chronic disease. Great toe-joints healthy. The cartilage had absolutely disappeared from the terminal joint of the left index finger, and hard, polished surfaces of bone remained, with some lip growth.

Female, æt. 37, admitted July 25th. One brother died soon after an attack of rheumatism. Pains in the joints for three weeks.

On admission nearly all the large joints were involved, there was much perspiration, and the temp. was 103.4° . Ten hours later it was 104.2° . Next day the skin was scarcely perspiring, and the joints were less painful. She was quite sensible until the evening, when the temp., which had varied between 103.4° and 105.2° , rose to 106.4° . It was reduced by a cold bath to 102.6° . At 8 p.m. (two hours later) temp. was 106.6° ; at 11, 108.4° ; and at 11.45, 109° . She then had convulsions, and at 1.30 a.m., July 27th, she died, the temp. rising to 111° .

Post-mortem examination.—Both knees contained a little turbid fluid, and the synovial membrane was injected. The cavities of the heart were dilated, the valves healthy. There was cloudy swelling of the liver and kidneys. The blood everywhere was dark and fluid. Brain healthy.

III.—MYXŒDEMA.

Fatal cases.

Female, æt. 41, admitted July 30th, died August 1st. Had been in the hospital several times previously.

On admission was very cyanotic and had great dyspnœa. Face typical of the

disease. Temp. 97° . There was much cough, and the signs of a cavity existed at right apex. July 31st, temp., a.m., 96.6° , p.m., 98.6° .

Post-mortem examination.—Two or three moles in front of chest. Hair abundant in scalp, scanty in axillæ and in pubes. Much subcutaneous fat and much fat in mesentery and omentum. Thyroid gland pale, flattened out, shape normal; much fibrous tissue on section. Submaxillary glands healthy. Tongue large. Uvula and soft palate healthy. There was a small cavity at the apex of each lung and a few tubercles in the left lung. Liver fatty and congested; no gall-stones. Kidneys healthy.

Female, æt. 44, admitted August 17th, died September 7th. No myxœdema in family. Present illness began four years ago.

On admission appearance was typical of myxœdema. There was a hard, brawny swelling in the position of the thyroid, mainly involving the right lobe. Temp. 97.4° . Urine contained a trace of albumen. No hair in axillæ, scanty on scalp and on pubes. Much cough and dyspnœa with stridor. Lungs normal. Occasional hallucinations.

Post-mortem examination.—Body enormously fat. In the position of the thyroid gland and involving it was a mass of new growth (carcinoma). No secondary deposits in the organs. Tongue and uvula swollen.

IV.—DIABETES.

Fatal cases.

Male, æt. 24, admitted July 24th, died September 19th. Present illness began ten months ago.

On admission much emaciation, thirst, and hunger. Knee-jerk absent on right side, slight on left. Much sugar in the urine, but no albumen. Much drowsiness throughout.

On September 15th there was much abdominal pain, followed the next day by vomiting. Before death the urine became much diminished and contained albumen, and he fell into a comatose state.

Post-mortem examination.—The blood resembled a mixture of blood and pus. On standing the surface became covered by a white creamy layer, which was freely soluble in ether. The milky appearance was due to the presence of finely granular fat. The blood in the portal vein was dark and liquid. There was left pleuro-pneumonia.

Male, æt. 38, admitted November 19th, died December 18th.

On admission there was much emaciation and cough. There were the signs of phthisis, mainly in the left lung. The urine was abundant, contained much sugar, but no albumen. Knee-jerk absent on left side, slight on right. Temp. in the evening 2° or 3° higher than in the morning.

Post-mortem examination.—Large cavity in upper lobe of left lung with much broncho-pneumonic consolidation elsewhere. A few tubercles in liver. Pancreas small and firm, connective tissue greatly in excess.

Microscopical examination showed that the organ was in an advanced stage of cirrhosis.

V.—PYO-PNEUMOTHORAX.

Fatal case.

Male, æt. 27, admitted August 28th, 1884, died April 11th, 1885. Pleurisy a year ago, when he was tapped and a pint and a half of clear fluid removed. Has not been well since. Two weeks ago expectorated a quantity of yellow matter.

On admission he was found to have pyo-pneumothorax in the left side. On September 3rd a portion of rib was excised, and through the opening a quantity of air and pus escaped. On March 20th the opening was enlarged to allow free drainage. On April 6th he had several epileptiform convulsions, and was found afterwards to have left hemiplegia.

Post-mortem examination.—There was a very small amount of pus in the left pleural cavity. The left lung was small but crepitant, and on the external surface of the upper lobe a small perforation was found, which passed a little way into the organ. There were no tubercles. There was a well-defined abscess, containing thick greenish pus, and measuring 2 inches from before backwards, situated in the white matter corresponding to the posterior two thirds of the superior frontal convolution and adjoining part of the middle frontal on the right side. There was also an abscess, 1 inch in diameter, in the white matter of the fore part of the right occipital lobe.

VI.—ARTERIAL AND VENOUS OBSTRUCTION.

Male, æt. 51, admitted February 2nd, discharged April 26th. His wife has had some premature confinements. Denies syphilis and alcoholic excess. In 1868 had an attack of sharp pain in the left foot, said to be gout, followed by phlebitis. In 1880 he had obstruction of the right brachial artery, and shortly afterwards the radial and ulnar veins became thrombosed. Between 1881 and 1884 he had several attacks of arteritis or phlebitis. On admission there was tenderness over the right femoral artery in the groin, and feeble pulsation. No beat could be felt in the posterior tibial artery. The right internal saphena vein was thickened, cord like, and evidently obstructed. There was no pulsation whatever in the right brachial artery, but it was good in the third part of the subclavian. The pulse at the right radial was feeble, and that at the ulnar was not perceptible. The great vessels in the left upper and lower limbs were unaffected. The heart was irregular but otherwise normal. There was no sign of aneurysm. There was no albuminuria. On two occasions he had severe pain in the head, limited to the right frontal and parietal regions, accompanied by fever, but with no signs of obstruction of vessels. He was treated with mercury and iodide of potassium, and had hot soda baths on alternate days. Discharged relieved.

VII.—ADDISON'S DISEASE.

Fatal case.

Female, æt. 30, admitted January 20th, died February 12th. Her illness began 8 months ago with violent vomiting, which lasted 2 or 3 days. At the same time she noticed her tongue and gums were getting black.

On admission she complained of discolouration of skin and tongue, giddiness, fainting fits, lassitude, and occasional vomiting. The skin of the face, neck, and backs of the hands was of a dusky coppery tint. The trunk and extremities were also dusky, but less so than the hands and face. The pigmentation was most marked on the extensor surfaces of the joints, especially the knees, and was very evident where there had been pressure—around the neck, waist, and above the knees. The axillæ, areolæ of nipples, and the middle line of abdomen between umbilicus and pubes were also pigmented. There were patches of almost black pigment on the upper surface of the tongue, the roof of the mouth, sides of the cheeks, gums, and inner surfaces of the lips. The hair was dark, absent in the axillæ. The abdominal and plantar reflexes were very brisk, but the knee-jerk, as she lay in bed, was not obtained. The heart and lungs were healthy. The urine contained a trace of albumen. During observation she had constant vomiting, faintings, and headaches. The pulse was very feeble. The temperature tended to be subnormal. Towards the end she became very drowsy, the pulse was barely perceptible, and after a severe bout of vomiting she died suddenly.

Post-mortem examination.—In addition to the pigmentation noted during life, there was much discolouration of the nymphæ, the inner surfaces of the labia majora and around the anus. There were a few pigment spots on the pleuræ. The upper part of the œsophagus showed rather extensive brownish-black discolouration. Both suprarenal bodies were of about equal size and distinctly small, the diminution being especially evident in thickness. They had their natural cocked-hat shape, and the hilus was present. There was no obvious alteration of colour. The free edge was irregularly notched. After hardening in spirit, the extreme length of the left suprarenal was one inch and a half, and its breadth three quarters of an inch. At the hilus, the thickest part, it was one eighth of an inch; at the edge, the thinnest, one sixteenth of an inch. The sympathetic ganglia and filaments appeared normal.

Microscopical examination showed the presence of a chronic interstitial fibrous change in the adrenals, spreading from without inwards. There were large tracts of round-celled growth in the right semilunar ganglia. There was much black pigment in the rete mucosum of the skin, mainly in the deep cells, and also, though to a less extent, in the corium. There was also abundant pigment in the rete mucosum and corium of the mucous membrane of the mouth.

VIII.—GASTRIC ULCER.

Fatal case.

Female, æt. 43, admitted August 1st, died August 9th. Had been in the hospital ten months previously for hæmatemesis. Eight days ago had severe attack of hæmatemesis.

On admission was very anæmic, and complained of pain in the abdomen. There was a systolic murmur over both pulmonary and aortic valves. She had no return of the hæmatemesis, but the motions were black. She became gradually weaker and paler, and towards the end delirious.

Post-mortem examination.—The veins in the upper part of the œsophagus were varicose and some of them contained coagula. Midway between the cardiac and pyloric orifices, on the smaller curvature, there was a round, clearly-cut, nearly healed ulcer, the size of a sixpence, and on its floor the orifice of a small artery was seen. There was advanced cirrhosis of the liver. The left ventricle showed well-marked patches of fatty degeneration, and the mitral valve was thickened, fibrous, and incompetent.

IX.—PERFORATION OF VERMIFORM APPENDIX.

Male, æt. 8, admitted June 5th, died June 8th. Four days before admission jumped from a height of four feet and shortly after was seized with pain in the right inguinal region and vomiting.

On admission the abdomen was tender, much distended, and resonant everywhere, except in the right iliac region. Some bilious vomiting. Temp. 100·4°. Opium pills were ordered. Next day the vomiting recurred, but later there was decided improvement, the pain being less severe and the abdomen softer and less tender. Passed plenty of urine. Temp., p.m., 103°. On the morning of the 7th the bowels were opened twice, the motions being solid, yellowish, and free from blood or inflammatory products. Temp. 102·2°. In the evening he became collapsed, and about two hours later died.

Post-mortem examination.—General peritonitis, most intense in the right iliac region. Abdomen contained two pints of pus. There was a rent in the vermiform appendix, about its mid length, due to the perforation of an ulcer. Near this ulcer there was found a brown, laminated concretion about the size and shape of a cherry stone. It was soft, except for a few gritty patches, and cut easily. There were several small superficial ulcers scattered through the appendix, and there was a quantity of yellow liquid fæces in it. The mucous membrane of the small intestines, except the upper three feet, was covered with yellowish-white, easily separable membrane. Large intestine healthy.

Male, æt. 17, admitted September 20th, died September 23rd. Five days ago had abdominal pain, followed by vomiting and obstinate constipation.

On admission the abdomen was distended, rigid, and very tender. It was

resonant, except in the flanks, the dulness there shifting on change of position. Temp. 99° . Two days later there was diarrhœa. The vomiting persisted. Temp. below 100° , except shortly before death, when it varied between 100° and 101.2° .

Post-mortem examination.—General peritonitis. Intestines distended. There was a rent near the distal end of the appendix, about half an inch long. A plug of apparently hardened fæces, the size of a small bean, was discovered in the appendix, and the mucous membrane was inflamed. The abdomen contained some gas, but no fæces.

X.—CEREBRO-SPINAL MENINGITIS.

Male, æt. 17, admitted April 8th, died April 12th. Severe pains in the head and vomiting for 10 days. No injury or discharge from ear.

On admission there was acute pain in the head and back of neck. Eyelids swollen, vision indistinct, no squint, no diplopia. No facial paralysis. Tongue protruded straight. Temp. 102.2° . Three days later there was double optic neuritis. He was quite unconscious, and the respiration was of the Cheyne-Stokes type. Temp. just before death 105.6° .

Post-mortem examination.—Calvarium healthy. Much lymph on pia mater at base and vertex, more on left side than on right. Spinal cord was coated with thick yellow lymph all along its posterior surface, and in the lower cervical and upper dorsal regions on the anterior surface also.

Male, æt. 67, admitted October 16th, died October 18th. No history.

On admission he was unconscious. There were continual grimaces from irregular contractions of the facial muscles. The hands were tremulous and there were constant small movements of the fingers. The legs were constantly flexed and extended. No squint. Some anæsthesia of right side. Temp. 103.6° .

Post-mortem examination.—There was much yellow lymph all over the brain beneath the arachnoid. No tubercles. The mastoid cells and both middle ears contained much pus. The dura mater at the base, and the surface of the petrous bones were quite healthy. There was much yellow lymph in the subarachnoid space of the cord over the posterior surface, except the upper half of the cervical region. It was most abundant in the lower lumbar region, where there was a little lymph about the anterior roots and adjacent anterior surface; otherwise the anterior surface was unaffected.

Female, æt. 6, admitted May 28th, died May 30th. No history of phthisis in family. Patient was never strong. Has had measles and whooping-cough. Was very forward in her schoolwork. A week ago became languid, had pains in the head, screamed and started. No vomiting.

On admission she was very fretful when awake, and inclined to sleep much. Now and then she screamed out suddenly. There were occasional twitching movements of the right arm. She kept the head fixed and thrown back, and cried when the neck was touched. Pupils small, active to light. No optic neuritis. Some paralysis of right internal rectus. No paralysis of arms or legs. Patellar reflexes sluggish, plantar natural. Temp. 103° . Two days later she

became worse. The arms and head were tremulous on movement. Her aspect was one of terror, and she constantly called out. Vomited once on May 30th for the first time since admission. Three leeches were applied to the head, and the pain seemed relieved. An hour before death twitchings alternating with rigidity came on, the neck was much extended backwards, and Cheyne-Stokes respiration occurred. Temp. 103.8° . Was quite unconscious for the 3 hours preceding death.

Post-mortem examination.—There was general cerebral meningitis, but no tubercles. The dura mater and bones at the base of skull were healthy. Some pus was found in the right tympanum, but the bone around and the ossicles were not carious. The membrana was rather soft and tense, but not perforated. Mastoid cells were healthy. There was a little pus in the left tympanum. Sinuses healthy. There was thick, yellowish-white lymph over the posterior surface of the cord, from the lower half of the cervical region to the lowest lumbar. The lymph was less abundant anteriorly, and was situated only in the dorsal and lumbar regions. The dural sheath contained two or three drachms of turbid milky fluid.

SURGICAL REPORT.

1885.

BY WILLIAM HENRY BATTLE, F.R.C.S.

General Statement.

Number of surgical beds	241
„ of patients in hospital January 1st, 1885	222 { Males 127 Females 95
„ „ „ December 31st, 1885	222 { Males 136 Females 86
„ „ treated to a termination during the year 1885	2615
	Total. Males. Females.
Discharged cured	1701 ... 1056 ... 645
„ relieved	698 ... 430 ... 268
„ unrelieved	51 ... 23 ... 28
Died	165 ... 113 ... 52
	<hr/>
	2615 ... 1622 ... 993

Average number of deaths 5·9 per cent.
 „ „ days in hospital 30·4.
 (not including the ophthalmic cases).

TABLE I.—Abstract, showing Diseases, Injuries, &c., in

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
GENERAL DISEASES.																		
Erysipelas (arising) .	17	14	1	...	8	8	5	3	5	1	...	...	...	...	...	...	...	...
Do. (admitted as such)	34	17	2	2	5	13	9	10	5	5	27	20	...	...	...	...	...	...
Pyæmia (arising) .	5	2	...	1	2	3	1	...	...	...	...	...	...	...	...	...	...	...
Syphilis—																		
Primary . . .	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...
Secondary . . .	1	40	...	...	27	10	3	1	...	...	...	...	6	10	15	7	3	...
Tertiary . . .	4	6	...	...	1	3	4	2	...	...	...	...	...	1	2	1	6	...
Congenital . . .	3	...	2	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Glanders . . .	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Struma . . .	2	4	3	1	2	...	...	...	...	...	...	...	...	...	...	...	6	...
Rickets . . .	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...
LOCAL DISEASES.																		
TUMOURS.																		
Carcinomata—																		
Scirrhus of—																		
a. Breast . . .	...	23	...	...	...	...	4	6	8	5	...	...	...	...	3	8	12	...
b. Do. (recurrent)	...	3	...	...	...	...	2	...	1	...	...	1	...	...	...	1	...	1
c. Chest wall . .	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...
d. Abdomen (stomach).	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...
Epithelioma—																		
a. Tongue . . .	16	3	...	...	...	1	2	5	5	6	...	...	...	5	5	6	3	...
b. Mouth . . .	2	...	...	...	...	...	...	2	...	...	...	...	...	...	2	...	...	...
c. Lip . . .	4	...	...	...	...	...	...	1	...	3	...	...	...	...	2	2	...	...
d. Face (cheek) . .	3	...	...	...	...	...	...	1	...	2	...	...	...	...	2	...	1	...
e. Hand . . .	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
f. Neck . . .	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...
g. Glands . . .	4	...	...	...	...	...	...	1	...	3	...	...	...	2	2	...	...	...
h. Digestive tract .	8	...	...	...	...	...	...	1	5	2	...	...	...	1	3	3	...	1
j. Bladder . . .	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
k. Generative organs	7	4	...	...	...	2	2	3	3	1	...	...	...	1	4	4	2	...
Sarcoma—																		
a. Face . . .	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
b. Nose . . .	...	2	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	1
c. Forehead . . .	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
d. Jaw . . .	2	7	...	1	1	1	...	5	1	...	...	...	...	1	...	7	...	1
e. Tonsil . . .	1	2	...	...	...	...	1	...	2	...	...	...	...	...	1	2	...	...
f. Neck . . .	3	1	...	...	...	...	1	...	1	2	...	...	...	...	3	1	...	...
g. Ribs . . .	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
h. Back . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
j. Upper extremity .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
k. Lower extremity .	4	1	...	...	3	1	1	...	...	...	...	...	...	...	2	2	1	...

Classes, according to authorised Nomenclature.

Duration of residence.									Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	4	9	14	4	...	...	...	...	27	...	...	4	
2	17	13	14	4	1	...	...	...	48	...	...	3	
1	1	2	2	1	...	...	...	...	...	1	...	6	
...	...	...	1	...	...	...	...	...	...	1	...	...
1	4	9	19	6	...	2	...	...	32	9	...	...	Own request 1, without leave 1.
...	3	3	2	2	...	...	...	...	7	3	...	...
...	...	...	2	...	1	...	...	...	1	...	...	2	
...	1	...	...	...	...	...	...	...	...	...	...	1	See 'Lancet', p. 200, vol. ii, 1885.
1	1	1	1	2	...	...	...	...	3	3	...	...
...	...	...	2	...	...	...	...	...	...	2	...	...
2	2	6	11	2	...	...	...	...	18	5	...	...
...	1	1	1	...	...	...	...	...	2	1	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...	After abdominal section transferred to medical.
...	5	8	5	1	...	...	...	...	10	5	1	3	
1	...	1	...	...	...	...	...	...	...	2	...	...
...	...	3	1	...	...	...	...	...	3	1	...	...
...	1	...	2	...	...	...	...	...	3	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
1	...	1	2	...	...	...	...	...	...	3	...	1	
...	4	...	2	2	...	...	...	...	3	1	...	4	
...	...	...	1	...	...	...	...	...	...	1	...	...
...	..	4	3	4	...	...	...	...	7	4	...	...
...	...	...	...	1	...	...	...	...	1	...	...	...	Recurrent.
1	1	...	...	...	...	...	...	...	...	1	1	...	
...	1	...	...	...	...	...	...	...	...	1	...	...
...	5	2	2	...	...	...	...	...	6	...	2	1	
...	1	1	1	...	...	...	...	...	...	1	1	1	
...	...	3	1	...	...	...	...	...	3	1	...	...
1	...	...	...	...	...	...	...	...	...	1	...	...
...	...	1	...	...	...	...	...	...	...	1	...	...	Recurrent.
...	...	...	...	1	...	...	...	...	...	...	...	1	
...	1	1	2	1	...	...	...	...	4	...	...	1	

TABLE I.—Abstract, showing Diseases, Injuries, &c., in

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic	Not reported.
LOCAL DISEASES.																		
TUMOURS.																		
Sarcoma—continued.																		
l. Kidney . . .	1	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
m. Breast . . .	...	2	...	...	...	1	...	...	...	1	...	...	...	1	...	...	1	...
n. Testis . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1	...
o. Lymphatic glands . . .	3	...	...	...	1	...	...	1	1	...	...	...	...	...	...	1	2	...
Lipoma . . .	1	6	...	...	3	1	...	1	1	...	...	...	...	...	...	...	7	...
Fibroma . . .	...	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2	...
Myo-fibroma . . .	...	2	...	...	...	...	...	1	1	...	...	...	...	1	1	...	...	...
Fibro-cellular . . .	...	2	...	...	...	1	...	1	...	...	...	...	...	...	...	...	2	...
Enchondroma . . .	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2	...
Exostosis . . .	1	2	...	...	2	1	...	...	...	...	...	...	...	1	...	...	...	2
Adenoma . . .	...	3	...	...	...	1	...	2	...	...	...	...	...	...	...	...	3	...
Papilloma . . .	1	2	...	1	1	...	1	...	...	...	...	...	...	...	...	...	3	...
Keloid . . .	2	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	2	...
Nævus . . .	2	4	...	2	4	...	...	...	...	...	...	...	...	...	...	...	6	...
Rodent ulcer . . .	1	1	...	...	...	...	...	...	1	1	...	...	...	...	...	...	2	...
Lupus . . .	3	6	...	...	7	...	1	...	1	...	...	...	...	...	...	...	9	...
Ovarian (chiefly cystic) . . .	...	18	...	...	2	6	2	2	3	3	...	...	...	3	2	4	9	...
Lymphadenoma . . .	3	1	...	...	1	2	...	1	...	...	...	...	...	...	1	...	3	...
Angioma . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Villous growth of rectum . . .	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...
Cysts—																		
a. Sebaceous . . .	2	2	...	...	...	...	2	1	1	...	...	...	...	...	...	...	4	...
b. Other cysts . . .	3	1	...	1	...	1	1	...	...	1	...	...	...	...	...	1	3	...
NERVOUS SYSTEM.																		
Tetanus . . .	3	...	...	...	1	1	...	...	1	...	3	...	...	...	...	...	...	...
Neuralgic affections . . .	2	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2	...
Unruly arm . . .	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...
Old injuries to nerves . . .	1	2	...	...	1	2	...	...	...	...	...	...	...	...	3	...	...	...
CIRCULATORY SYSTEM.																		
Aneurysm. . .	4	...	...	...	...	...	2	2	...	...	...	1	...	...	2	1	...	...
Cirroid aneurysm . . .	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Varicose veins . . .	6	3	...	...	1	6	1	1	...	...	...	...	...	...	...	...	9	...
Phlebitis . . .	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Thrombosis . . .	...	2	...	...	...	...	1	...	...	1	...	1	...	...	1	...	...	...
Hæmorrhage . . .	7	3	...	...	1	3	3	1	1	1	9	...	...	...	1	...	...	...
Gangrene . . .	6	1	...	...	...	...	1	2	1	3	...	4	1	1	1	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks. 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	...	...	1	...	...	...	...	...	1	...	...	...	See 'Lancet,' 1885, vol. i, p. 936.
...	...	1	1	...	...	...	...	...	1	1	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	1	...	2	...	...	...	...	2	1	...	...
...	1	4	2	...	...	...	...	...	6	...	1	...	1 refused operation.
...	...	1	1*	...	...	...	...	...	2	...	...	...	Sheath of tendon, abdominal wall.
...	...	...	...	...	...	...	...	...	...	2	...	...
...	1	1	...	...	...	...	...	...	2	...	...	...
...	...	2	...	...	...	...	...	...	1	...	...	1	Fatal: parotid; erysipelas.
...	...	...	1	1	1	...	...	...	3	...	...	...	Femur, tibia, humerus.
...	...	1	2	...	...	...	...	...	2	1	...	...	Breast.
...	...	1	2	...	...	...	...	...	3	...	...	...	Tongue 2, back 1.
...	1	...	...	1	...	...	...	...	1	1	...	...	Scarlet fever 1.
...	...	3	2	1	...	...	...	...	6	...	...	...	Face 1, shoulder 2, leg 1, hand 1, multiple 1.
...	...	1	1	...	...	...	...	...	2	...	...	...	1 recurrent.
...	1	3	4	1	...	...	...	...	5	4	...	...	Nose 2, face 7.
1	3	5	8	1	...	...	...	...	12	5	...	1	
...	...	3	...	...	1	...	...	...	1	3	...	...	1 transferred to medical side.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...	Excision of rectum.
1	1	2	...	...	...	...	...	...	4	...	...	...	Thigh 1, head 2, back 1.
...	1	1	1	1	...	...	...	...	4	...	...	...	Intestine 1, abdominal wall 1, tibia 1, neck 1.
...	
1	1	1	...	...	...	...	...	...	...	...	...	3	Traumatic. See also Fracture of Fingers.
...	...	1	1	...	...	...	...	...	2	...	...	...	See Operations.
...	1	...	...	1	...	...	...	...	...	1	1	...	
1	...	...	2	...	...	...	...	...	1	2	...	...	Operations for resection.
...	...	1	1	2	...	...	...	...	3	1	...	...	Subclavian 1, axillary 1, femoral 1, femoral and popliteal 1.
...	...	...	...	1	...	...	...	...	...	...	...	1	Repeated hæmorrhage after ligature of carotid.
...	3	4	2	...	...	...	...	...	4	5	...	...	Internal saphena.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	1	1	...	...	...	...	...	2	...	...	...
3	4	2	1	...	...	...	...	...	10	...	...	...
2	4	...	1	...	...	...	...	...	2	2	...	3	

TABLE I.—Abstract, showing Diseases, Injuries, &c., in

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not reported
RESPIRATORY SYSTEM.																		
Foreign body in trachea .	2	...	...	...	...	2	...	...	...	...	1	1	...	...	...	...	...	...
" " bronchus.	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Laryngeal stenosis .	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
LYMPHATIC SYSTEM.																		
Adenitis	2	...	...	...	...	1	1	...	...	...	2	...	...	...	...	...	...	...
Abscess	4	3	...	1	2	4	...	...	...	...	...	2	2	...	1	...	2	...
Caseous degeneration	1	3	1	1	2	...	...	...	...	...	...	...	...	...	...	...	4	...
Lymphangitis	2	...	1	...	1	...	...	...	...	...	1	1	...	...	...	...	...	...
Breasts—																		
Abscess . . . . .	...	5	...	...	1	...	2	2	...	...	...	...	1	...	3	...	1	...
Spurious elephantiasis of leg	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...
DISEASES OF DUCTLESS GLANDS.																		
Thyroid	1	5	...	...	2	1	2	1	...	...	...	...	...	...	...	...	6	...
DIGESTIVE SYSTEM.																		
Acute tonsillitis . .	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...
Stomatitis	1	3	...	2	1	...	1	...	...	...	2	1	1	...	...	...	...	...
Ulceration of palate .	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
" mouth .	2	...	...	...	...	1	1	...	...	...	...	1	...	...	...	...	1	...
Œsophageal stricture	4	...	...	...	1	...	...	2	1	...	...	...	...	...	1	2	1	...
Strangulated hernia—																		
Inguinal	24	3	3	1	3	5	7	1	3	4	25	2	...	...	...	...	...	...
Femoral	2	16	...	...	...	2	2	1	1	12	13	5	...	...	...	...	...	...
Umbilical . . . . .	...	1	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...
Herniæ—																		
Inguinal	10	...	1	...	3	3	2	...	...	1	1	1	1	1	...	...	6	...
" irreducible	3	...	...	...	...	...	1	2	...	...	...	2	...	...	...	...	1	...
Femoral	1	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...
" irreducible	...	2	...	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...
" umbilical irreducible	1	2	...	...	...	...	1	1	1	...	...	...	...	...	...	...	3	...
" ventral .	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
Intestinal obstruction	1	1	...	...	...	1	...	1	...	...	...	...	...	1	...	...	1	...
" fistula .	1	1	1	...	...	...	...	...	1	...	...	...	...	1	...	1	...	...
Gastric fistula . . .	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Hæmorrhoids	14	6	...	...	...	4	10	4	2	...	...	...	...	...	1	...	19	...
Ulceration of rectum	...	2	...	...	...	2	...	...	...	...	...	...	2	...	...	...	...	...
Stricture of rectum .	4	4	1	...	...	2	...	3	1	1	...	...	...	...	2	1	5	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.										Result.				Remarks.
S.	Dys.	Wks	Mts.	Mts.	Mts.	Mts.	Mts.	Mts.	Above	C.	R.	U.	D.	
4	5-13	2-4	1-2	2-4	4-6	6-9	9-12		a year.					
	2	2	Removed.
	...	...	1	...	...	...	...	...	...	1	...	...	...
	...	...	1	...	...	...	...	...	...	...	1	...	...
1	1	2	Struma. Readmission.
	...	5	2	...	...	...	...	...	...	7	...	...	...
	...	2	1	1	...	...	...	...	...	3	1	...	...
1	...	1	2	Struma. Readmission.
	1	2	2	...	...	...	...	...	...	4	1	...	...
	...	...	1	1	...	...	...	...	...	...	2	...	...
	1	2	3	3	3	? tubercular.
	1	...	...	...	...	...	...	...	...	1	...	...	...
	3	1	...	...	...	...	...	...	...	3	1	...	...
	1	1	3 malignant.
	1	1	...	...	...	...	...	...	...	2	...	...	...
	...	2	1	...	...	1	...	...	...	1	2	...	1
9	12	3	3	18	5	...	4	See Special Table I.
6	...	2	9	1	...	...	...	...	...	12	...	...	6
	...	1	...	...	...	...	...	...	...	...	...	...	1
	Resection of gut; miscarriage. See 'Lancet,' vol. ii, 1885, p. 616.
5	3	...	...	2	...	...	...	...	...	4	5	...	1
	1	...	2	...	...	...	...	...	...	1	2	...	...
	1	1	Radical cure 1.
	...	...	2	...	...	...	...	...	...	1	1	...	...
	2	1	...	...	...	...	...	...	...	...	3	...	...
	1	1	See 'Lancet,' vol. i, p. 1164, 1885.
	...	2	...	...	...	...	...	...	...	...	1	...	1
	...	1	1	...	...	...	...	...	...	1	...	...	1
	1	Recto-vaginal, vesico-intestinal.
1	3	13	2	1	...	...	...	...	...	16	4	...	...
	...	1	1	...	...	...	...	...	...	...	2	...	...
	1	1	4	2	6	...	2	Malignant 4, syphilitic 3, congenital 1; colotomy 4; peritonitis in syphilitic stricture from perforation.
	
	

TABLE I.—Abstract, showing Diseases, Injuries, &c., in

DISEASE.	Sex.		Age.									Duration before admission.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60		Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
DIGESTIVE SYSTEM — <i>continued.</i>																			
Prolapse of rectum . . .	1	4	3	...	...	1	...	...	1	...	...	1	...	...	3	...	1	...	...
Fissure of anus . . .	2	3	...	...	2	1	2	...	...	...	...	...	1	...	3	...	1	...	...
Fistula in ano . . .	25	6	...	1	4	8	6	7	5	...	...	2	3	1	11	4	10	...	...
Chronic ulceration of omentum	1	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
GENITO-URINARY SYSTEM.																			
Phimosis . . .	3	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	3	...
Paraphimosis . . .	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...
Œdema of scrotum . . .	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Epididymitis . . .	1	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...
Varicocele . . .	15	...	...	...	12	3	...	...	...	...	...	...	...	...	...	...	2	5	...
Hæmatocele . . .	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...
Hydrocele . . .	8	...	...	1	2	2	2	...	...	1	...	...	1	1	2	...	4	...	...
Hernia testis . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Syphilitic testis . . .	2	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	2	...
Tubercular testis . . .	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Hæmaturia . . .	...	1	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...
Incontinence of urine . . .	3	...	1	...	1	1	...	...	...	...	...	...	...	1	...	1	...	1	...
Vulvitis . . .	...	1	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Diseases of the ovaries . . .	...	3	...	...	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...
Retention of urine . . .	15	...	2	...	1	3	5	2	1	1	10	2	...	1	...	...	...	...	...
Stricture of urethra . . .	31	...	...	...	...	6	11	6	5	3	...	...	...	...	4	3	22	...	...
Extravasation of urine . . .	3	...	...	...	...	...	...	1	...	2	1	2	...	...	...	...	...	...	...
Urinary abscess . . .	5	...	...	...	1	1	2	...	1	...	1	...	3	1	...	...	...	...	...
Urinary fistula . . .	5	...	...	...	...	...	...	...	2	3	...	...	...	...	...	...	1	4	...
Prostatic enlargement . . .	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Atony of bladder . . .	2	...	...	...	...	1	...	...	...	1	...	1	1	...	...	...	...	...	...
Cystitis . . .	3	...	...	...	...	2	...	...	...	1	...	...	...	1	1	...	...	1	...
Calculus urethræ . . .	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Calculus vesicæ . . .	10	...	...	2	2	2	...	...	...	4	...	...	...	...	2	1	2	4	...
Calculus of kidney . . .	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Hydronephrosis . . .	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pyonephrosis . . .	1	1	...	...	...	1	1	...	...	...	...	...	...	...	...	...	1	1	...
OTHER AFFECTIONS OF THE GENERATIVE ORGANS.																			
Gonorrhœa . . .	...	30	...	...	19	10	1	...	...	...	...	2	9	9	1	1	4	...	...
Soft sore . . .	10	7	...	...	6	10	...	...	1	...	1	6	7	3	...	...	...	...	...
DISEASES OF THE BONES.																			
Periostitis, acute—																			
Humerus . . .	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	3	2	...	...	...	...	...	...	4	1	...	...
...	4	1	...	...	...	...	...	...	4	1	...	...
4	6	7	10	4	...	...	...	...	23	7	1	...	
...	...	...	...	...	1	...	...	...	...	...	...	1	Cause obscure.
...	3	...	...	...	...	...	...	...	3	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	1	...	...	...	...	...	...	...	1	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	9	5	1	...	...	...	...	14	1	...	...	In majority duration not known.
...	1	...	...	...	...	...	...	...	1	...	...	...
1	2	2	3	...	...	...	...	...	6	1	1	...	
...	...	1	...	...	...	...	...	...	1	...	...	...	Castration; probably tubercular.
...	...	1	1	...	...	...	...	...	1	1	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	1	...	...	...	...	...	...	...	1	...	...	...
...	2	...	1	...	...	...	...	...	2	1	...	...	Digital exploration 1.
1	...	...	...	...	...	...	...	...	1	...	...	...
...	...	3	...	...	...	...	...	...	...	2	...	1	2 malignant, 1 chronic ovaritis.
1	7	4	3	...	...	...	...	...	9	2	...	4	1 transferred.
...	5	9	12	5	...	...	...	...	24	7	...	...
1	2	...	...	...	...	...	...	...	1	...	...	2	
...	2	...	1	1	1	...	...	...	4	1	...	...
...	...	1	3	1	...	...	...	...	2	3	...	...
...	1	...	...	...	...	...	...	...	...	1	...	...
...	...	1	1	...	...	...	...	...	1	1	...	...
...	1	1	1	...	...	...	...	...	2	1	...	...	Gonorrhœa 2, enlarged prostate 1.
...	...	...	1	...	...	...	...	...	1	...	...	...
...	1	2	6	1	...	...	...	...	9	...	...	1	
...	...	...	...	1	...	...	...	...	1	...	...	...
...	...	...	...	1	...	...	...	...	...	1	...	...
...	...	...	1	1	...	...	...	...	...	1	...	1	
2	3	11	6	5	3	...	...	...	18	10	2	...	
...	2	7	5	3	...	...	...	...	16	1	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.										Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.		C.	R.	U.	D.	
...	1	1	...	1	...	...	...	...	2	...	...	1		Fatal: pyæmia.
...	...	1	...	...	...	...	...	...	1	...	...	...
1	...	...	...	1	...	...	...	...	1	1	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	1	1	1	...	...	...	1	2	...	...
...	1	1	...	...	...	...	...	...	2	...	...	...
...	...	1	1	1	...	...	...	...	...	3	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	1	2	...	...	...	...	2	1	...	...
...	...	1	...	...	...	...	...	...	...	1	...	...
...	...	1	...	1	...	...	...	...	1	1	...	...
...	...	...	1	1	...	1	...	...	...	3	...	...		Erysipelas 1.
...	1	...	...	...	...	...	...	...	...	1	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	1	...	1	1	...	...	...	...	3	...	...	...
...	5	1	1	...	...	...	...	...	2	3	...	2		1 spinal caries.
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	1	2	1	...	...	...	...	4	...	...	...		1 with metacarpal.
...	...	...	2	...	...	...	...	...	1	1	...	...
...	...	1	...	1	...	...	...	...	2	...	...	...
...	...	2	4	2	1	...	...	...	6	2	...	1		Fatal: pyæmia.
...	1	3	...	3	1	...	...	...	7	1	...	...
...	...	...	...	1	...	...	...	...	1	...	...	...		Amputation of leg.
...	...	...	1	...	...	1	...	...	2	...	...	...
...	...	1	2	...	...	...	...	...	...	3	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...
...	1	...	1	...	...	...	...	...	1	1	...	...		Phthisis.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	1	1	2	...	...	...	...	4	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...

TABLE I.—Abstract, showing Diseases, Injuries, &c., in

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re-
DISEASES OF JOINTS.																		
Temporo-maxillary . . .	...	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Shoulder—																		
Chronic . . .	3	...	1	1	...	...	...	1	...	...	...	...	...	1	1	...	1	...
Old excision . . .	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Elbow—																		
Incipient . . .	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Chronic . . .	6	4	...	2	5	1	...	1	1	...	...	...	...	...	...	3	7	...
Wrist . . .	2	3	...	...	2	3	...	...	...	...	...	1	...	2	...	...	2	...
Thumb . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Metacarpo-phalangeal	1	1	...	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...
Anchylosis . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Hip—																		
Incipient . . .	10	6	6	4	4	2	...	...	...	...	1	2	3	3	5	2	...	...
Chronic . . .	24	18	8	8	21	5	...	...	...	...	1	...	...	1	4	8	28	...
Rheumatism . . .	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...
Old excision . . .	1	3	...	1	2	...	1	...	...	...	...	...	1	...	...	...	2	...
Anchylosis . . .	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...
Knee—																		
Incipient . . .	4	11	3	1	3	6	2	...	...	...	...	1	5	5	4	...	...	...
Chronic . . .	7	12	3	6	4	4	...	1	1	...	...	...	...	...	...	...	19	...
Anchylosis . . .	3	3	...	...	4	1	1	...	...	...	...	...	...	...	1	...	5	...
Old excision . . .	2	1	...	...	3	...	...	...	...	...	...	...	...	...	...	1	2	...
Rheumatoid . . .	5	3	...	...	1	4	2	...	...	1	...	1	1	...	2	2	2	...
Loose cartilage . . .	4	...	...	...	2	2	...	...	...	...	...	...	...	...	2	...	2	...
Hysterical . . .	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...
Ankle—																		
Acute . . .	2	1	1	1	...	1	...	...	...	...	1	...	1	1	...	...	...	...
Chronic . . .	10	3	3	3	2	3	2	...	...	...	...	...	...	...	...	2	11	...
Anchylosis . . .	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Rheumatism . . .	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Foot—																		
Tarsal joints . . .	2	1	...	1	1	...	...	1	...	...	...	...	...	...	2	1	...	...
Toe . . .	6	...	1	...	...	...	2	...	3	...	...	...	...	4	1	...	1	...
DISEASES OF THE SPINE.																		
Pott's curvature . . .	12	9	8	1	4	2	4	1	1	...	...	1	2	...	...	2	16	...
Spinal tenderness . . .	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	...	1	...	...	...	...	...	...	...	1	...	...
...	...	1	1	1	...	...	...	...	2	1	...	...	1 excision of head of humerus.
...	...	1	...	...	...	...	...	...	1	...	...	...	After dislocation.
...	...	1	...	...	...	...	...	...	...	1	...	...
...	1	1	3	4	1	...	...	...	5	4	1	...	1 refused treatment.
...	1	...	2	2	...	...	...	...	3	2	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...	Incision.
...	...	2	...	...	...	...	...	...	...	2	...	...	Excision 2.
...	...	...	1	...	...	...	...	...	1	...	...	...	After excision of wrist.
...	3	5	4	2	2	...	...	...	5	10	...	1	
1	2	7	4	11	9	2	4	2	15	24	...	3	
...	...	1	...	...	...	...	...	...	...	1	...	...
...	...	1	...	2	1	...	...	...	...	2	...	2	
...	...	...	...	2	...	...	...	...	1	1	...	...	Osteotomy 1.
...	...	4	7	3	1	...	...	...	13	2	...	...
1	3	6	2	4	3	...	...	...	6	13	...	...
...	1	...	4	1	...	...	...	...	3	2	1	...	
...	...	...	1	2	...	...	...	...	3	...	...	...	Osteotomy 2.
...	2	2	1	3	...	...	...	...	3	5	...	...
...	...	1	3	...	...	...	...	...	3	1	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	3	...	...	...	...	...	...	...	1	2	...	...
...	2	...	5	3	...	3	...	...	10	3	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...
...	...	1	1	...	1	...	...	...	1	2	...	...	Refused treatment 1, disease of pelvis 1.
...	...	4	2	...	...	...	...	...	4	2	...	...
2	3	5	7	3	...	1	...	...	3	18	...	...	Dorsi-lumbar 7, dorsal 10, lumbar 3, cervical 1.
...	...	1	...	...	...	...	...	...	1	...	...	...	With abscess: psoas 7, lumbar 1, iliac 2, para-
...	...	1	...	...	...	...	...	...	1	...	...	...	plegia 2. Sinuses, gluteal 1, over hip 1, lumbar
...	...	1	...	...	...	...	...	...	1	...	...	...	1, with pleurisy 1.

TABLE I.—*Abstract, showing Diseases, Injuries, &c., in*

DISEASE.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-6	Mts. 6-12	Chronic.	Not re.
DEFORMITIES.																		
Talipes—																		
Equino-varus . . .	12	6	12	2	3	1	...	...	...	...	...	...	...	...	...	...	18	...
Equinus . . .	3	2	1	4	...	...	...	...	...	...	...	...	...	...	...	...	5	...
Valgus . . .	...	3	...	...	2	...	1	...	...	...	...	...	...	...	...	1	2	...
Hammer toe . . .	1	4	...	...	3	1	1	...	...	...	...	...	...	...	...	...	5	...
Torticollis . . .	3	...	...	2	1	...	...	...	...	...	...	1	...	...	...	...	2	...
Genu valgum . . .	4	5	2	...	6	1	...	...	...	...	...	...	...	...	1	1	7	...
Curved tibiæ . . .	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Deformity—																		
Congenital . . .	2	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...
Acquired—																		
<i>a.</i> Nose . . .	2	1	...	1	1	1	...	...	...	...	...	...	...	...	...	...	3	...
<i>b.</i> Of eyelid . . .	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
<i>c.</i> After injury . . .	3	2	1	...	4	...	...	...	...	...	...	1	...	...	...	1	3	...
<i>d.</i> Burn . . .	1	3	1	1	1	...	1	...	...	...	...	...	...	...	...	...	4	...
MALFORMATIONS.																		
Spina bifida . . .	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Harelip . . .	4	2	6	...	...	...	...	...	...	...	...	...	...	...	...	...	6	...
Cleft palate . . .	3	11	2	1	7	4	...	...	...	...	...	...	...	...	...	...	14	...
Of hip . . .	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
Of rectum . . .	1	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
APPENDAGES TO MUSCULAR SYSTEM.																		
Thecal suppuration . . .	1	1	...	...	1	...	...	...	1	...	...	...	...	2	...	...	...	...
Ganglion . . .	3	1	...	...	1	...	1	2	...	...	...	...	...	1	...	1	2	...
Bursæ—																		
1. Inflammation—																		
Prepatellaris . . .	5	1	...	...	1	3	1	1	...	...	4	1	1	...	...	...	...	...
2. Suppuration—																		
Prepatellaris . . .	3	8	...	1	5	3	2	...	...	...	3	4	2	2	...	...	...	...
Over olecranon . . .	1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...
3. Enlargement—																		
Prepatellaris . . .	...	4	...	...	2	...	1	...	1	...	...	...	...	...	...	...	4	...
Popliteal . . .	2	1	...	...	2	...	...	1	...	...	...	...	...	...	...	...	3	...
CELLULAR TISSUE.																		
Sinus . . .	7	...	...	1	1	1	1	...	3	...	...	...	...	...	1	4	2	...
Abscess—																		
Face and neck . . .	4	5	1	1	1	3	1	...	1	1	1	1	3	3	1	...	...	...
Upper extremity . . .	1	1	...	...	...	2	...	...	...	...	...	1	1	...	...	...	...	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	1	5	4	2	4	2	...	...	13	5	...	...	Double 8, right 6, left 4.
...	2	2	1	...	...	...	...	...	5	...	...	...	Double 1, left 4.
1	...	...	2	...	...	...	...	...	1	2	...	...
...	...	1	4	...	...	...	...	...	5	...	...	...
...	...	1	1	1	...	...	...	...	2	1	...	...
...	2	...	1	6	...	...	...	...	6	2	...	1	Double 6, right 3.
...	1	...	...	1	1	...	...	...	2	1	...	...
...	...	2	...	...	...	...	...	...	2	...	...	...
...	1	...	2	...	...	...	...	...	3	...	...	...	Deviation of septum 1.
...	...	...	...	1	...	...	...	...	1	...	...	...
...	2	...	...	2	1	...	...	...	3	1	1	...	
...	1	...	...	1	2	...	...	...	3	1	...	...
1	...	...	...	...	1	...	...	...	...	...	...	2	
1	1	4	...	...	...	...	...	...	4	...	...	2	Fatal: diarrhoea 1, pneumonia 1.
...	2	6	6	8	3	2	1	Fatal: marasmus.
...	...	1	1	
3	1	2	
...	...	2	2	
...	1	2	...	1	2	1	1	...	
1	2	2	1	5	1	
...	...	8	2	1	11	
1	1	
...	...	1	2	1	4	
...	...	1	2	1	2	
1	...	1	5	1	6	
...	6	2	1	8	1	
...	2	2	

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CELLULAR TISSUE.																		
Abscess (continued)—																		
Axilla	4	3	...	1	1	...	3
Chest wall . . .	4	1	...	2	1	2	1	1	...	2	1
Back	1	1	1
Abdomen . . .	4	1	1	1	1	1	...	...	1	...	...	...	4	...	1	...	...	...
Iliac . . .	3	1	1	...	...	1	...	2	...	...	1	...	1	...	...	2	...	...
Ischio-rectal . . .	7	3	...	...	...	4	2	2	...	2	1	3	2	1	...	1	2	...
Of labium . . .	3	...	...	2	...	...	1	...	...	1	1	1	...	...	...	...	...	...
Perinæal . . .	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Gluteal . . .	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Hip . . .	2	...	...	...	...	1	...	1	...	...	...	...	...	...	1	1	...	...
Thigh . . .	9	3	4	2	2	3	...	...	1	...	...	3	8	...	1	...	...	...
Leg . . .	3	1	1	1	1	...	...	...	1	...	...	2	...	2	...	...	...	...
Foot . . .	2	...	...	...	...	1	...	1	...	...	...	...	...	...	2	...	...	...
Cellulitis—																		
Face and neck . . .	4	1	...	...	...	3	1	1	...	...	2	2	...	1	...	...	...	...
Pelvis . . .	...	3	...	...	...	3	...	...	...	...	...	...	...	2	...	1	...	...
Upper extremity . . .	14	6	...	...	1	4	3	5	5	2	5	9	3	2	1	...	...	...
Lower extremity . . .	2	8	...	...	2	2	2	1	3	...	1	3	5	1	...	...	...	...
Chest . . .	2	...	...	...	...	1	...	1	...	...	...	2	...	...	...	...	...	...
Boil . . .	1	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Carbuncle . . .	4	3	...	...	...	...	2	3	1	1	...	1	3	3	...	...	...	...
Ingrowing toe-nail . . .	1	1	...	...	1	1	...	...	...	...	...	...	...	...	...	...	2	...
Conical stump . . .	2	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	1	...
Hypertrophy of toe-nails . . .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
Ulcer—																		
Shoulder . . .	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Groin . . .	1	1	1	...	...	...	...	1	...	...	...	1	...	...	1	...	...	...
Over knee . . .	...	2	...	...	1	...	...	1	...	...	...	1	...	...	...	...	1	...
Leg . . .	19	10	...	...	4	3	12	5	4	1	1	...	...	...	2	3	23	...
Foot . . .	5	4	1	1	1	1	2	1	1	1	...	...	...	...	1	2	6	...
Erythema nodosum . . .																		
Eczema . . .	...	3	...	...	...	1	...	...	2	...	...	...	...	1	...	...	2	...
Noma . . .	2	2	4	...	...	...	...	...	...	...	1	1	1	1	...	...	...	...
Gumma . . .	2	3	...	...	...	1	...	2	2	...	...	...	...	1	...	1	3	...

Classes, according to authorised Nomenclature—continued.

Duration of residence.									Result.				Remarks.
Dys. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-3	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	3	1	...	...	...	...	...	...	3	...	...	1	Fatal: after vaccination.
1	1	1	1	1	...	...	...	...	4	1	...	...
...	...	...	...	1	...	...	...	...	...	1	...	...
...	1	3	1	...	...	...	...	...	5	...	...	...
...	...	...	1	2	1	...	...	...	3	1	...	...
...	5	4	...	1	...	...	...	...	7	3	...	...
...	2	...	...	1	...	...	...	...	3	...	...	...
1	...	...	...	...	...	...	...	...	1	...	...	...
...	...	...	...	...	1	...	...	...	1	...	...	...
...	...	...	...	1	1	...	...	...	2	...	...	...	1 extending into groin.
...	3	6	2	1	...	...	...	...	11	...	...	1	Fatal: broncho-pneumonia.
...	2	1	...	1	...	...	...	...	3	...	...	1	
...	1	...	1	...	...	...	...	...	2	...	...	...
...	4	...	1	...	...	...	...	...	4	...	...	1	Fatal: pyæmia.
...	1	...	1	1	...	...	...	...	1	2	...	...
1	5	7	5	2	...	...	...	...	17	...	...	3	Fatal: cellulitis of hand and arm 2; hand 1, with mitral disease and bronchitis.
...	2	4	2	2	...	...	...	...	8	...	...	2	Fatal: bronchitis 1; ? septicæmia 1, no P.M.
...	...	...	1	1	...	...	...	...	2	...	...	...
1	...	...	...	...	...	...	...	...	1	...	...	...
...	2	4	1	...	...	...	...	...	7	...	...	...	Complications: gout 1, herpes 1.
...	1	1	...	...	...	...	...	...	2	...	...	...
...	...	1	1	...	...	...	...	...	1	1	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	1	...	...	...	...	...	...	...	...	1	...	...
...	2	...	...	...	...	...	...	...	1	1	...	...
...	...	...	2	...	...	...	...	...	1	1	...	...
...	6	8	8	5	2	...	...	...	17	11	...	1	
...	...	3	3	2	1	...	...	...	8	...	...	1	Traumatic 1, syphilitic 1, perforating 4, strumous 1, gangrene of toe 1.
...	...	1	1	...	...	...	...	...	2	...	...	...
...	1	...	1	1	...	...	...	...	2	1	...	...	Nipple 1, leg 1, head 1.
1	...	1	2	...	...	...	...	...	3	...	...	1	
...	1	3	...	1	...	...	...	...	3	2	...	...

TABLE II.—

INJURIES.	Sex.		Age.									Duration before admission.						
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Under 1 hour.	Hrs. 1-6	Hrs. 7-12	Hrs. 13- 24	Dys. 1-3	Dys. 3-6	Above 6 days.	Not re-
GENERAL INJURIES.																		
Burns	21	22	16	4	6	8	5	1	2	1	33	3	2	2	1	2	...	
Scalds	17	11	18	5	3	...	1	...	1	...	25	...	...	1	2	...	...
LOCAL INJURIES.																		
<i>Injuries of the head—</i>																		
Contusion	4	2	4	...	...	...	2	...	...	...	3	3	...	...	...	...	...
Scalp wounds	45	12	9	9	5	7	10	7	5	5	27	24	3	1	...	...	2	
Concussion	49	18	7	13	10	14	7	13	3	...	45	18	4	...	...	...	...
Fracture—Vault:																		
Simple	2	2	1	1	...	1	...	...	...	1	3	...	...	...	...	...	1	
Compound	6	3	1	2	1	1	2	2	...	...	9	...	...	...	...	...	...
„ depressed	2	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...
„ comminuted	2	...	...	...	...	...	1	1	...	...	2	...	...	...	...	...	...
Of base	12	4	2	3	1	5	4	...	1	...	16	...	...	...	...	...	...
Wound of tonsil	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
<i>Injuries of the face—</i>																		
Contusion	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Wound	4	4	1	...	1	2	...	2	2	...	4	3	...	1	...	...	...
Fracture—Sup. maxilla.																		
Inf. maxilla	2	...	...	1	...	...	...	1	...	...	1	1	...	...	...	...	...
<i>Injuries of the eyelid</i>																		
Injury to eyeball	1	2	...	1	1	1	...	...	...	...	...	1	...	2	...	...	...
<i>Injuries of the neck—</i>																		
Contusion	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Wounds	1	1	...	...	...	1	...	...	...	1	1	1	...	...	...	...	...
Sprain . . . . .	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
<i>Injuries of the chest—</i>																		
Contusion	13	1	2	...	2	4	4	2	...	...	13	...	...	...	1	...	...
Fracture of rib	18	2	2	2	...	1	4	6	1	4	10	4	1	4	1	...	...
<i>Injuries of the back—</i>																		
Contusion	14	4	3	3	4	5	2	1	...	...	16	1	...	...	1	...	...
Sprain	1	1	...	...	...	1	...	1	...	...	...	1	...	...	1	...	...
Wound	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
<i>Injuries of the spine—</i>																		
Concussion	2	...	...	...	...	...	1	...	1	...	...	...	...	1	1	...	...
Fracture	8	...	...	...	1	2	...	2	2	1	8	...	...	...	...	...	...
Dislocation	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...

Injuries.

[illegible]

TABLE II.—

INJURIES.	Sex.		Age.								Duration before admission.							
	M.	F.	Under 15	5-10	-20	-30	-40	-50	-60	Above 60	Under 1 hour.	Hrs. 1-6	Hrs. 7-12	Hrs. 13-24	Dys. 1-3	Dys. 3-6	Above 6 days.	Not re-
LOCAL INJURIES— <i>continued.</i>																		
<i>Injuries of the abdomen—</i>																		
Wound	2	...	...	1	...	...	1	...	...	...	2	...	...	...	...	...	...	..
Contusion	5	1	1	2	1	2	...	...	...	...	6	...	...	...	...	...	...	..
Foreign bodies in diges- tive tract	3	3	1	...	2	2	1	...	...	...	1	2	...	1	...	...	2	..
<i>Injuries of the pelvis—</i>																		
Contusion	3	...	...	1	...	...	1	1	...	...	2	1	...	...	...	...	...	..
Fracture	5	2	2	1	...	1	1	1	...	1	7	...	...	...	...	...	...	..
Wound of buttock . . .	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	..
Bullet lodged in condyle of femur	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	..
Contusion of groin . . .	2	...	...	...	1	1	...	...	...	...	1	1	...	...	...	...	...	..
Strangulation of penis .	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	..
Wound of genitals . . .	5	4	3	1	3	2	...	...	...	...	3	4	1	1	...	...	...	..
Contusion of perinæum .	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	..
Wound of perinæum . . .	3	...	...	1	1	...	1	...	...	...	3	...	...	...	...	...	...	..
Rupture of urethra . . .	3	...	1	1	...	1	...	...	...	...	...	1	1	...	1	...	...	..
UPPER EXTREMITY.																		
Contusion	5	...	...	...	...	...	2	1	2	...	4	1	...	...	...	...	...	..
Wound	20	5	2	2	9	9	3	...	...	...	13	10	...	...	2	...	...	..
Wound of axilla	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	..
<i>Dislocation of—</i>																		
Clavicle	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	..
Humerus	4	2	...	...	...	1	1	1	3	...	...	...	...	...	...	1	5	..
Forearm	2	1	...	...	...	2	1	...	...	...	1	...	...	...	...	...	2	..
Thumb	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	..
<i>Fracture of—</i>																		
Clavicle	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	..
Humerus—																		
Simple	3	2	1	...	...	1	...	...	1	2	4	...	...	1	...	...	...	..
Comminuted	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	..
Compound	2	1	...	...	...	...	...	1	...	2	3	...	...	...	...	...	...	..
Radius and ulna—																		
Compound	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	..
Ulna—																		
Simple compound	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	..
Radius—																		
Simple	4	1	...	...	1	2	...	2	...	...	4	1	...	...	...	...	...	..
Compound	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	..

continued.

Duration of residence.									Result.				Remarks.
rs. 4-5	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
1	...	1	...	...	...	...	...	...	1	...	...	1	Pneumonia 1.
3	2	1	...	...	...	...	...	...	6	...	...	...
4	1	1	...	...	...	...	...	...	3	3	...	...
2	1	...	...	...	...	...	...	...	3	...	...	...	Removal.
1	...	2	3	1	...	...	...	...	5	...	...	2	
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
1	1	...	...	...	...	...	...	...	2	...	...	...	Undescended testis.
...	...	...	1	...	...	...	...	...	1	...	...	...	String.
2	3	4	...	...	...	...	...	...	9	...	...	...	1 pertussis.
...	1	...	...	...	...	...	...	...	1	...	...	...	Pyæmia, q. v. With wound 1, pneumonia 1.
...	2	1	...	...	...	...	...	...	2	...	...	1	
...	...	1	1	...	1	...	...	...	3	...	...	...	Requiring amputation 1.
1	1	1	2	...	...	...	...	...	4	1	...	...
4	12	4	3	1	1	...	...	...	22	3	...	...
...	1	...	...	...	...	...	...	...	1	...	...	...	Excision 1.
1	...	...	...	...	...	...	...	...	1	...	...	...
...	3	2	1	...	...	...	...	...	2	4	...	...
...	1	1	...	1	...	...	...	...	2	...	1	...	
1	...	...	...	...	...	...	...	...	...	1	...	...	Also of rib 1.
...	...	...	1	...	...	...	...	...	1	...	...	...
...	2	2	1	...	...	...	...	...	5	...	...	...	Right, direct.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	1	1	1	...	...	...	...	3	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...	Right, direct.
...	...	...	1	...	...	...	...	...	1	...	...	...	Right, direct.
1	1	3	...	...	...	...	...	...	3	1	...	1	Fatal: erysipelas. 1 puerperal mania, 2 fracture of nasal bones, 2 double.
...	1	...	...	...	...	...	...	...	1	...	...	...

TABLE II.—

INJURIES.	Sex.		Age.									Duration before admission.						
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60	Under 1 hour.	Hrs. 1-6	Hrs. 7-12	Hrs. 13-24	Dys. 1-3	Dys. 3-6	Above 6 days.	Not re-
UPPER EXTREMITY—																		
<i>continued.</i>																		
<i>Fracture of—</i>																		
Hand and fingers—																		
Comp. and comminuted	13	1	...	1	4	4	3	1	1	...	11	1	...	...	...	2	...	
Injuries to tendons	1	1	...	...	2	...	...	...	...	...	...	...	...	...	...	2	...	
LOWER EXTREMITY.																		
<i>Contusion of—</i>																		
Hip	8	2	1	...	1	4	2	...	...	2	4	3	1	1	1	...	...
Thigh	2	4	1	1	...	2	1	...	...	1	4	1	...	1	...	...	...
Leg	1	1	...	...	...	1	...	...	...	1	1	...	...	...	...	...	1	
Foot	8	2	1	1	2	1	3	1	1	...	6	4	...	...	...	...	...
<i>Wound of—</i>																		
Thigh	9	...	1	...	4	...	4	...	...	...	5	4	...	...	...	...	...
Knee	7	...	1	...	4	2	...	...	...	...	1	4	...	1	1	...	...
Leg	5	4	2	2	3	1	...	...	...	1	5	4	...	...	...	...	...
Foot	5	...	1	1	1	1	...	1	...	...	3	2	...	...	...	...	...
Rupture of muscle .	1	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Rupture of tendon .	1	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...
Sprain of leg . . .	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
<i>Dislocation of—</i>																		
Hip	2	1	...	2	...	...	...	1	...	...	1	...	...	1	...	...	1	
Knee	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Patella	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Foot	2	1	...	...	2	1	...	...	...	...	2	1	...	...	...	...	...
<i>Fracture of femur—</i>																		
Simple	48	20	18	15	12	1	4	5	4	9	50	8	2	2	2	2	2	
Compound . . . . .	...	1	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...
Comp. comminuted	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Neck of femur . .	4	3	...	...	1	...	...	1	1	4	1	3	...	2	...	...	1	
<i>Fracture of patella.</i>	13	7	...	...	...	5	10	3	2	...	17	1	2	...	...	...	...
<i>Fracture of tibia—</i>																		
Simple	20	11	3	8	7	2	1	4	5	1	26	2	...	...	2	1	...	
Compound	2	...	...	...	1	1	...	...	...	...	2	...	...	...	...	...	...
<i>Fracture of fibula—</i>																		
Simple	40	12	3	1	4	16	12	10	4	2	45	3	...	1	2	1	...	

continued.

Duration of residence.									Result.				Remarks.
s.	Dys.	Wks	Mts.	Mts.	Mts.	Mts.	Mts.	Above	C.	R.	U.	D.	
4	5-13	2-4	1-2	2-4	4-6	6-9	9-12	a year.					
2	5	4	2	1	...	...	...	...	13	...	...	1	Fatal: tetanus.
	1	...	1	...	...	...	...	...	1	1	...	...	Flexors of fingers.
	4	3	2	...	...	...	...	...	9	1	...	...
	3	2	1	...	...	...	...	...	6	...	...	...
	1	...	...	1	...	...	...	...	2	...	...	...
	5	3	1	1	...	...	...	...	9	1	...	...
	3	2	4	...	...	...	...	...	9	...	...	...	Erysipelas 1.
	2	2	2	...	...	...	...	...	7	...	...	...	Synovitis 3.
	1	3	2	1	...	...	...	...	7	1	...	1	Granular kidneys 1, erysipelas 1.
	4	...	1	...	...	...	...	...	5	...	...	...	Erysipelas 1.
	1	...	...	...	...	...	...	...	1	...	...	...	Thigh.
	...	1	...	...	...	...	...	...	1	...	...	...	Tendo Achillis.
	...	...	...	...	...	...	...	...	1	...	...	...
	1	2	...	...	...	...	...	...	2	1	...	...
	...	...	1	...	...	...	...	...	1	...	...	...
	1	...	...	...	...	...	...	...	1	...	...	...
	...	1	2	...	...	...	...	...	2	...	...	1	Compound 1.
	2	13	40	8	2	2	1	...	67	...	...	1	See General Summary.
	...	...	...	1	...	...	...	...	1	...	...	...
	...	...	...	1	...	...	...	...	1	...	...	...	Amputation.
	...	1	4	2	...	...	...	...	6	1	...	...
	...	7	12	1	...	...	...	...	20	...	...	...
18	10	2	...	...	...	...	...	...	26	5	...	...
...	...	2	...	...	...	...	...	...	2	...	...	...
30	8	5	2	...	...	...	...	...	38	14	...	...

TABLE II.—

[illegible]

continued.

Duration of residence.									Result.				Remarks.
Yrs. 1-4	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
..	31	47	12	1	1	...	...	...	71	20	...	1	
..	1	2	6	1	1	...	...	...	11	...	...	...
..	...	1	3	1	...	...	...	...	4	...	...	1	
1	...	3	1	...	...	...	...	...	4	1	...	...	Compound 2, amputation of leg 1, muscular action 1, fracture of fibula 1.
2	1	...	1	...	...	...	...	...	4	...	...	...	1 amputation for suppuration, 3 needles.
..	1	...	...	...	...	...	...	...	1	..	...	...
..	1	...	1	...	...	...	...	...	2	...	...	...
2	14	11	6	1	...	...	...	...	31	3	...	...
1	1	...	...	...	...	...	...	...	1	1	...	...
11	11	5	5	1	1	...	...	...	14	16	...	4	Fatal: renal disease 1, diphtheria 1, cerebellar disease 1, chronic peritonitis 1.
27	2	3	...	...	...	...	...	...	30	2	...	...
..	...	...	...	...	...	...	...	...	62	273	31	1	
..	...	...	...	...	...	...	...	...	..	...	...	13	
									1701	698	51	165	
									2615				

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60
REMOVAL OF TUMOURS AND GROWTHS.										
Amputation of the breast . . .	...	6	...	...	...	1	1	3	1	...
Ditto with removal of glands . . .	...	17	...	...	...	...	1	5	6	5
Removal of recurrent growth . . .	...	2	...	...	...	...	1	...	1	...
„ scirrhus of chest wall . . .	...	1	...	...	...	...	...	...	...	1
For epithelioma of lip . . .	4	...	...	...	...	...	...	1	...	3
„ tongue . . .	11	3	...	...	...	1	1	4	5	3
„ floor of mouth . . .	1	...	...	...	...	...	1	...	...	...
„ face . . .	3	...	...	...	...	...	...	1	...	2
„ glands . . .	2	...	...	...	...	...	...	1	...	1
„ hand . . .	1	...	...	...	...	...	...	...	1	...
„ generative organs . . .	6	3	...	...	...	1	2	2	3	1
„ bladder . . .	...	...	...	...	...	...	...	...	...	...
„ rectum . . .	...	...	...	...	...	...	...	...	...	...
For sarcoma of temporo-maxill. region . . .	1	...	...	...	...	...	1	...	...	...
„ upper jaw . . .	...	4	...	1	1	...	...	1	1	...
„ lower jaw . . .	1	2	...	...	...	1	...	2	...	...
„ glands . . .	3	1	...	...	1	...	...	2	...	1
„ neck . . .	2	1	...	...	...	...	1	...	1	1
„ bones . . .	1	...	...	...	...	1	...	...	...	...
For adenoma of breast . . .	...	2	...	...	...	1	...	1	...	...
For fibroma . . .	...	2	...	...	...	2	...	...	...	...
For fibro-cellular tumour . . .	...	2	...	...	...	1	...	1	...	...
For lipoma . . .	1	5	...	...	3	1	...	1	1	...
For cheloid . . .	1	...	...	...	1	...	...	...	...	...
For papilloma . . .	1	2	...	1	1	...	...	1	...	...
For enchondroma . . .	...	1	...	...	...	1	...	...	...	...
For osteochondroma . . .	1	...	...	...	...	1	...	...	...	...
For villous tumour of rectum . . .	...	1	...	...	...	...	...	1	...	...
For exostosis . . .	1	2	...	...	2	1	...	...	...	...
For lymphadenoma . . .	1	...	...	...	...	1	...	...	...	...
For angioma . . .	...	2	...	...	...	2	...	...	...	...
For nævus . . .	2	4	1	2	3	...	...	...	...	...
For rodent ulcer . . .	1	1	...	...	...	...	...	...	1	1
For lupus . . .	1	5	...	...	4	...	1	...	1	...
For ovarian tumour . . .	...	12	...	...	1	2	2	3	3	1
For sebaceous cysts . . .	2	2	...	...	...	...	2	1	1	...
For other cysts . . .	3	1	...	1	...	1	1	...	...	1
CIRCULATORY SYSTEM.										
Ligature of carotid (common) . . .	...	1	...	...	...	1	...	...	...	...
„ subclavian . . .	1	...	...	...	...	...	1	...	...	...

Surgical Operations.

Duration of residence after operation.									Result.				Remarks.
Under 4 days.	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	...	5	1	...	...	...	...	...	5	...	...	1	Scirrhus 2, adenoma 1, sarcoma 1, chronic inflammation 2.
...	...	8	7	2	...	...	...	...	17	...	...	...
...	...	2	...	...	...	...	...	...	2	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	1	3	...	...	...	...	...	...	3	1	...	...
...	4	8	2	...	...	...	...	...	9	2	...	3	
...	...	1	...	...	...	...	...	...	1	...	...	...
...	1	2	...	...	...	...	...	...	3	...	...	...
...	...	1	...	1	...	...	...	...	...	2	...	...	Inguinal 1, submaxillary 1.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	6	2	1	...	...	...	...	7	2	...	...	Cervix uteri 2, penis 5, clitoris 1, scrotum 1.
...	...	...	...	...	...	...	...	...	...	...	...	...	See digital exploration.
...	...	...	...	...	...	...	...	...	...	...	...	...	See excision of rectum.
...	...	...	1	...	...	...	...	...	1	...	...	...	Recurrent.
...	2	...	2	...	...	...	...	...	4	...	...	...	Epulis 2.
1	2	...	...	...	...	...	...	...	2	...	...	1	Epulis 1.
...	...	1	1	2	...	...	...	...	2	2	...	...	Groin 2, axilla 1, neck 1.
...	...	3	...	...	...	...	...	...	3	...	...	...	? Glandular.
...	...	...	...	1	...	...	...	...	...	...	...	1	See also amputation, nephrectomy, castration, amputation of breast.
...	...	2	...	...	...	...	...	...	2	...	...	...	See also amputation of breast.
...	...	1	1	...	...	...	...	...	2	...	...	...	Sheath of tendon and abdominal wall.
...	1	1	...	...	...	...	...	...	2	...	...	...
...	3	3	...	...	...	...	...	...	6	...	...	...
...	...	...	...	1	...	...	...	...	1	...	...	...
...	1	2	...	1	...	...	...	...	3	...	...	...	Tongue 2, back 1.
...	...	1	...	...	...	...	...	...	...	...	...	1	Parotid; erysipelas.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...	Partial excision.
...	...	...	1	2	...	...	...	...	3	...	...	...	Humerus, femur, tibia.
...	1	...	...	...	...	...	...	...	1	...	...	...
...	...	1	...	1	...	...	...	...	1	1	...	...	See ligature of carotid.
...	2	2	2	...	...	...	...	...	6	...	...	...	Excision 4, electrolysis 2.
...	...	2	...	...	...	...	...	...	2	...	...	...
...	...	3	3	...	...	...	...	...	5	1	...	...
1	...	6	5	...	...	...	...	...	11	...	...	1	See General Summary.
1	3	...	...	...	...	...	...	...	4	...	...	...
...	2	1	...	1	...	...	...	...	4	...	...	...	Hydrocele of neck 1, abdominal wall 1, intestine 1, over tibia 1.
...	...	...	...	...	1	...	...	...	...	...	...	1	Angioma; died from secondary hæmorrhage; several operations.
...	...	1	...	...	...	...	...	...	1	...	...	...

continued.

Under 4 days.	Duration of residence after operation.								Result.				Remarks.
	Dys. 5-13	Wks. 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
1	...	...	...	...	...	...	...	...	1	...	...	...	Aneurism.
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	1	1	1	...	...	...	...	3	...	...	...	Femoral aneurism; hæmorrhage 2.
...	...	3	1	...	...	...	...	...	4	...	...	...
...	1	1	2	...	...	...	...	...	1	...	...	3	Diphtheria 1, removal of foreign body from bronchus 1, œdema due to epithelioma of gullet 1, sarcoma of tonsil 1.
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	3	...	...	...	...	...	...	3	...	...	...
...	...	...	...	...	...	1	...	...	1	...	...	...	Forcible.
...	1	...	1	...	...	...	...	...	1	...	...	1	Peritonitis 1.
...	...	1	...	...	...	...	...	...	1	...	...	...
2	4	2	3	...	...	...	...	...	7	...	...	4	
3	1	2	9	...	...	...	...	...	11	...	...	4	
...	...	1	...	...	...	...	...	...	...	...	...	1	See also resection of intestine.
1	...	...	...	...	...	...	...	...	...	...	...	1	Epithelioma of œsophagus.
1	...	1	1	...	...	...	...	...	...	2	...	1	Pyloric cancer 1, imperforate rectum 1, explora- tory 1.
1	...	1	1	1	1	...	...	...	...	3	...	2	
1	...	...	...	...	...	...	...	...	...	...	...	1	
...	1	...	2	1	...	...	...	...	3	...	...	1	
3	...	...	...	...	...	...	...	...	1	...	2	...	2 died after further (abdominal) operation.
2	2	3	...	...	...	...	...	...	7	...	...	...
...	7	7	3	1	1	...	...	...	18	1	...	...	Ligature 10, clamp and cautery 9.
3	7	10	5	2	...	...	...	...	26	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	See strangulated umbilical hernia.

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	Under 15	5-10	-20	-30	-40	-50	-60	Above 60
GENITO-URINARY SYSTEM.										
For phimosis	11	...	2	1	5	2	1	...	...	...
For hydrocele	4	...	...	...	1	2	1	...	...	...
For varicocele	16	...	...	...	11	5	...	...	...	...
For castration	5	...	...	...	...	3	2	...	...	...
For removal of warts . . . . .	...	2	...	...	2	...	...	...	...	...
For removal of ovaries . . . . .	...	1	...	...	...	1	...	...	...	...
Rectal puncture of bladder	1	...	...	...	...	...	1	...	...	...
Supra-pubic puncture	1	...	...	...	1	...	...	...	...	...
Internal urethrotomy	8	...	...	...	...	1	3	3	...	1
Perineal section	6	...	1	...	1	1	...	...	1	2
Perineal puncture	12	...	...	...	...	...	5	4	...	3
Lithotripsy	4	...	...	...	...	1	...	...	...	3
Lithotomy	6	...	...	2	2	1	...	1	...	...
Digital exploration of bladder	3	...	...	...	1	1	...	1	...	...
Exploration of kidney . . . . .	...	1	...	...	...	1	...	...	...	...
Nephrotomy . . . . .	...	1	...	...	...	...	1	...	...	...
Nephrectomy	2	...	1	1	...	...	...	...	...	...
LOCOMOTORY SYSTEM.										
Removal of necrosed bone from—										
Nose . . . . .	...	1	...	...	...	...	...	...	1	...
Jaw	3	4	2	...	1	1	2	...	1	...
Rib . . . . .	...	2	...	...	2	...	...	...	...	...
Scapula	1	...	...	1	...	...	...	...	...	...
Clavicle	1	...	...	...	1	...	...	...	...	...
Humerus	1	2	...	1	1	1	...	...	...	...
Radius	1	...	...	1	...	...	...	...	...	...
Bones of the hand	1	...	...	...	1	...	...	...	...	...
Pelvis . . . . .	...	1	1	...	...	...	...	...	...	...
Femur	3	3	...	...	3	3	...	...	...	...
Tibia	2	4	...	1	3	1	...	1	...	...
Os calcis and other bones of foot	4	...	...	...	2	...	...	1	...	1
For caries of—										
Ulna . . . . .	...	1	...	...	1	...	...	...	...	...
Bones of hand . . . . .	...	1	...	...	...	1	...	...	...	...
Tibia	1	...	...	...	...	...	1	...	...	...
Bones of foot	2	...	...	...	...	1	1	...	...	...
Excision of—										
Shoulder	1	1	...	1	...	1	...	...	...	...
Elbow	5	1	...	1	4	1	...	...	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
4 days.	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	4	5	2	...	...	...	...	...	9	2	...	...	Incision 6.
...	...	3	1	...	...	...	...	...	4	...	...	...
...	1	8	6	1	...	...	...	...	15	1	...	...	Excision 10, ligature 2, division after ligature 4.
...	1	4	...	...	...	...	...	...	5	...	...	...	Sarcoma 1, tubercular testes 1, syphilitic testes 1, congenital hernia 1, chronic hydrocele 1.
...	...	...	2	...	...	...	...	...	2	...	...	...
1	...	...	...	...	...	...	...	...	...	...	...	1	Chronic ovaritis.
...	1	...	...	...	...	...	...	...	...	...	...	1	
...	1	...	...	...	...	...	...	...	1	...	...	...
...	5	2	1	...	...	...	...	...	6	1	...	1	See also perineal puncture, section, and lithotrity.
1	1	2	...	1	1	...	...	...	3	1	...	2	Ruptured urethra 1; see also perineal puncture; bladder explored and stone removed since.
1	2	...	7	2	...	...	...	...	7	2	1	2	
...	1	2	1	...	...	...	...	...	4	...	...	...
...	...	3	2	1	...	...	...	...	5	...	...	1	
...	...	1	1	...	...	1	...	...	...	2	...	1	
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	...	1	...	...	...	...	...	1	...	...
...	...	...	1	1	...	...	...	...	1	1	...	...	Sarcoma 1, hydronephrosis 1.
...	...	1	...	...	...	...	...	...	1	...	...	...
...	3	2	2	...	...	...	...	...	6	...	...	1	
...	...	...	1	1	...	...	...	...	2	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...
...	1	1	1	...	...	...	...	...	3	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	...	...	1	...	...	...	...	1	...	...	...
...	...	1	...	...	...	...	...	...	1	...	...	...
...	...	...	3	2	...	1	...	...	6	...	...	...
...	...	2	3	1	...	...	...	...	6	...	...	...
...	1	3	...	...	...	...	...	...	4	...	...	...
...	1	...	...	...	...	...	...	...	1	...	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	...	1	1	...	...	...	...	...	2	...	...	...
...	...	1	1	...	...	...	...	...	2	...	...	...	Disease 1, dislocation 1.
...	...	...	3	2	1	...	...	...	6	...	...	...

TABLE III.—

SURGICAL OPERATIONS.	Sex.		Age.							
	M.	F.	Under 5	5-10	-20	-30	-40	-50	-60	Above 60
LOCOMOTORY SYSTEM—<i>continued.</i>										
Excision of—										
Wrist	1	...	...	...	...	1	...	...	...	...
Bones of carpus	2	...	...	...	2	...	...	...	...	...
Hip	13	6	5	1	13	...	...	...	...	...
Knee . . . . .	...	1	...	...	1	...	...	...	...	...
Joints of toes	1	3	...	...	3	...	1	...	...	...
Resection of knee	2	...	...	...	2	...	...	...	...	...
Incision of—										
Elbow	1	...	...	...	...	...	...	...	1	...
Hip	2	...	2	...	...	...	...	...	...	...
Knee-joint	1	3	2	1	1	...	...	...	...	...
Ankle	1	1	1	...	1	...	...	...	...	...
Aspiration in disease of knee	3	...	...	1	2	...	...	...	...	...
Removal of loose cartilage	3	...	...	...	2	1	...	...	...	...
Tenotomy for club-foot	18	12	21	6	3	...	...	...	...	...
„ deformity	2	...	1	...	1	...	...	...	...	...
„ torticollis	2	...	...	2	...	...	...	...	...	...
Excision of bone for talipes	2	...	...	1	1	...	...	...	...	...
Union of tendon	1	1	...	...	2	...	...	...	...	...
REPARATIVE OPERATIONS.										
Contracted cicatrix . . . . .	...	6	1	2	...	...	3	...	...	...
Harelip	2	4	6	...	...	...	...	...	...	...
Cleft palate	3	8	1	1	7	2	...	...	...	...
Deformity	2	...	...	1	1	...	...	...	...	...
Removal of premaxillary bone	1	...	1	...	...	...	...	...	...	...
Plastic operations . . . . .	...	1	...	...	...	1	...	...	...	...
Trephining of skull . . . . .	...	...	...	...	...	...	...	...	...	...
„ tibia	1	...	...	...	...	1	...	...	...	...
Removal of bone in compound fracture	3	1	...	...	...	1	1	2	...	...
Subcutaneous division of femur	5	10	4	...	9	2	...	...	...	...
„ „ tibia	4	2	4	...	2	...	...	...	...	...
For ununited fracture	3	...	...	...	...	...	1	1	1	...
Reduction of dislocation—										
Humerus	1	1	...	...	...	...	...	1	...	1
Thumb	1	...	...	...	1	...	...	...	...	...
Hip	2	...	...	1	...	...	...	1	...	...
Knee	1	...	...	...	...	...	1	...	...	...
Patella	1	...	...	...	1	...	...	...	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
4 days.	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C.	R.	U.	D.	
...	...	...	1	...	...	...	...	...	1	...	...	...	After injury.
...	...	...	1	1	...	...	...	...	2	...	...	...
1	1	...	2	7	3	1	4	...	13	4	...	2	
...	...	...	...	1	...	...	...	...	1	...	...	...	Hammer-toe 3.
...	...	1	3	...	...	...	...	...	3	1	...	...
...	...	...	...	1	1	...	...	...	2	...	...	...
...	...	1	...	...	...	...	...	...	...	1	...	...
...	...	...	...	...	2	...	...	...	1	1	...	...
...	...	1	2	...	1	...	...	...	3	1	...	...
...	...	...	...	...	...	2	...	...	1	1	...	...
...	...	1	...	...	...	2	...	...	...	3	...	...
...	...	2	1	...	...	...	...	...	3	...	...	...
...	10	5	7	6	...	1	1	...	25	5	...	...
...	1	1	...	...	...	...	...	...	1	1	...	...
...	...	1	1	...	...	...	...	...	2	...	...	...
...	...	...	1	1	...	...	...	...	2	...	...	...
...	1	1	...	...	...	...	...	...	1	1	...	...
...	...	...	1	3	2	...	...	...	4	2	...	...	Exhaustion, diarrhoea.
1	2	3	...	...	...	...	...	...	5	...	...	1	
...	2	8	1	...	...	...	...	...	8	2	1	...	Deviated septum.
...	1	...	1	...	...	...	...	...	2	...	...	...
...	...	1	...	...	...	...	...	...	...	1	...	...	No regular trephining.
...	...	1	...	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	...	1	...	...	Complicated fracture of skull 2, foot 1, leg 1.
1	...	1	1	...	1	...	...	...	2	...	...	2	
...	...	...	6	9	...	...	...	...	13	1	...	1	
...	...	...	1	4	1	...	...	...	6	...	...	...	Afterwards amputation of thigh 2.
...	...	...	...	1	2	...	...	...	1	1	1	...	
...	2	...	...	...	...	...	...	...	...	1	1	...	
1	...	...	...	...	...	...	...	...	...	1	...	...
...	1	1	...	...	...	...	...	...	2	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...
...	1	...	...	...	...	...	...	...	1	...	...	...

continued.

Duration of residence after operation.									Result.				Remarks.
4 days.	Dys. 5-13	Wks 2-4	Mts. 1-2	Mts. 2-4	Mts. 4-6	Mts. 6-9	Mts. 9-12	Above a year.	C	R.	U.	D.	
		1	1	1	...	...	...	...	3	...	...	...
		1	...	...	...	...	...	...	1	...	...	...
1	6	2	2	...	...	...	...	...	11	...	...	...
	...	...	...	1	...	...	...	...	1	...	...	...
	...	...	6	2	...	...	...	...	8	...	...	...
	...	...	...	1	...	...	...	...	1	...	...	...
	1	1	...	...	...	...	...	...	1	...	...	1	1 amputation during tetanus.
	...	...	1	1	...	...	...	...	2	...	...	...	After operation for ununited fracture.
	...	1	...	1	...	...	...	...	2	...	...	...	Disease of wrist 1, conical stump 1.
	2	1	...	...	...	...	...	...	3	...	...	...
1	...	...	...	1	...	...	...	...	1	...	...	1	Fatal: sarcoma of femur.
	...	...	1	1	...	...	...	...	2	...	...	...
	...	...	4	3	2	...	1	...	9	...	...	1	
1	...	1	3	2	...	...	...	...	6	...	...	1	Fatal: from gangrene.
	...	...	1	2	...	...	...	...	3	...	...	...
	2	2	2	...	...	...	...	...	6	...	...	...
	1	2	2	1	...	...	...	...	1	5	...	...
1	...	...	...	...	...	...	...	...	1	...	...	...
	...	1	...	...	...	...	...	...	1	...	...	...
	2	...	...	1	...	...	...	...	3	...	...	...
	...	1	...	...	...	...	...	...	1	...	...	...
	...	2	1	2	...	...	...	...	5	...	...	...
	2	...	...	1	...	...	...	...	2	...	...	1	Fatal: bullet wound of forehead; cause of death unknown.
		1	1	...	...	...	...	...	1	1	...	...	Musculo-spiral; inferior dental.
1	...	1	...	...	...	...	...	...	1	...	1	...	Involved in cicatrix.
	...	1	...	...	...	...	...	...	1	...	...	...	Spasmodic tic.
									501	66	6	49	
									622				

SUMMARY OF DISEASES.

GENERAL DISEASES.

ERYSIPELAS (arising in the hospital).

See Special Table.

Erysipelas (admitted as such).—Males 34, females 17. C. 48, D. 3. Of these 4 were cellulo-cutaneous. Of the scalp 2, head and face 2, face 13, neck 1, arm 17, hand 2, about the pelvis 3, leg 9, foot 1, occurring in thigh stump 1. *Causes*.—Wounds 17; contusions 9; incision of abscess 2; compound fracture of arm 1; ulcer of foot 1; boil 1; sinus 1; necrosis of lower jaw 1; 2 previous attacks, no evident cause; in the remainder no known cause and no predisposition to the disease.

Fatal cases.

1. Female, æt. 36. Scalp wound down to bone, ill five days, died third day after admission. Delirious. No P.M.

2. Male, æt. 32. Cellulo-cutaneous of arm, secondary to wound of olecranon bursa, incisions. Convalescent. Second attack with cough and chest symptoms. Was in hospital 145 days. P.M.—Destruction of left elbow-joint and cirrhosis of liver.

3. Male, æt. 33. Cellulo-cutaneous of arm, no evident cause. Chest symptoms with pericardial friction later. Was in hospital 6 days.

Pyæmia.—(See Special Table II.)

Syphilis.—Males 9, females 46. C. 43, R. 13, D. 2.

1. *Primary*.—Indurated chancre. Male 1. Phimosi requiring incision.

2. *Secondary*.—Male 1, female 40. C. 32, R. 9. Manifested by the following symptoms:—Condylomata 18, also of tongue and lips 3; tongue and palate 1; inner side of lips 3; palate 4; of umbilicus only, 1; congestion of fauces and tonsils 6; ulceration of tonsils 18; of uvula 1; of tonsils and palate 1; of tongue 1; of skin 2. Eruptions: roseolar 2; papular 2; squamous 6; pustular 2; maculæ from previous eruptions 13; rupial 2; loss of hair 3; sores about genitals 8. *Complications*.—Vaginal discharge 23; and warts 3; fissure of anus 2; hæmorrhoids 1; conjunctivitis 8; acne 1.

3. *Tertiary*.—Males 4, females 6. Ulceration under tongue 1; of hard palate

and nasal bones 2; nasal bones 1; necrosis of frontal 1; ulcer of nose and lips 1; gummatous ulceration 1; nodes 2.

Congenital.—Males 3. C. 1, D. 2.

Male, æt. 19. Ulceration of leg and arm.

Fatal cases.

Male, æt. 3. General epiphysitis, diarrhœa, exhaustion, and post-mortem, brôncho-pneumonia.

Male, æt. 7 months. Abscesses about hip- and elbow-joints, vomiting, diarrhœa, malaria, exhaustion. No P.M.

LOCAL DISEASES.

TUMOURS AND NEW GROWTHS.

Carcinomata.—

Scirrhus.—Male 1, females 26. C. 21, R. 6.

Of breast.—C. 18, R. 5. Breast only affected in 3; amputation performed in 2 cases; 1 refused operation. In 1 glands and skin were involved in addition to breast; in 17 glands involved; in 17 operation was performed; in 2 the disease was too extensive, and 1 took anæsthetic too badly to allow of operation. The right side was affected in 11 cases. The cause was attributed in 1 to cracked nipple; in 1 to abscess; in 5 to blows; in 9 no cause was suggested; in 6 there was family history of tumour.

Of breast (recurrent).—C. 2, R. 1. In 1 case the patient had been operated on previously for recurrent growth, and in the other 2 the growth recurred in scar and was easily removed.

Of thoracic wall.—Female 1. C. 1. Growth involving skin over four or five ribs and slightly affecting deeper structures.

Of stomach.—Male 1. R. 1. Æt. 48. Abdominal incision. Tumour about size of turkey's egg involving pylorus, also growths in omentum and serous covering of stomach. Transferred to medical side.

Epithelioma.—Males 47, females 7. C. 27, R. 17, U. 1, D. 9. *a. Tongue*.—Males 16, females 3. C. 10, R. 5, U. 1, D. 3. Operation in 1 case refused; in 3 not advised; glands affected in 9; glands and floor of mouth in 2. The cause given was in 4 irritation of tooth; in 3 excessive smoking; in 1 playing on brass instrument. In 3 there was well-marked history of syphilis, and in 2 family history of tumours. Excision of part of tongue with scissors 7; of whole tongue with scissors 1; with galvano-cautery 1; of part of tongue with écraseur and scissors 1; with scissors and galvano-cautery 1; division of cheek and jaw and removal of part of tongue with scissors 2; same with removal of whole tongue and gland 1; division of jaw and structures above hyoid bone and removal of tongue with scissors 1.

Fatal cases.

1. Male, æt. 62. Removal of part of tongue; secondary hæmorrhage. Died with general dissemination of growth.

2. Male, æt. 58. Growth involving floor of mouth and glands as well as tongue; division of jaw and removal of tongue with galvano-cautery; secondary hæmorrhage; ligature of lingual artery. No P.M.

3. Male, æt. 70. Part of tongue removed with scissors. P.M.—Pneumonia.

Of mouth.—Males 2. Same man admitted twice, the disease involved floor of mouth and glands too extensively to admit of operation.

Of lip.—Males 4. C. 3, R. 1. Operation performed in all; in 2 glands also affected; 2 were cases of recurrent growth.

Of cheek.—Males 3. C. 3. Operations in all; glands affected in 1; distinct history of syphilis in 1.

Of neck.—*Fatal case*.—Male, æt. 62. Growth involving left submaxillary region and glands; patient had attack of gout while in hospital. Caustic applied to growth; later bedsores; œdema of legs; and sloughing of growth. P.M.—Malignant, of neck and glands; gout; granular kidneys; and adherent pericardium.

Of glands.—Males 4.—R. 3, D. 1. 1, æt. 52, with recurrence in axillary glands after removal of growth from arm. The remaining 3 were all readmissions of same man, who had recurrence in submaxillary region after removal of epithelioma of lip. On first occasion a gland was removed; two months subsequently recurrence in another gland relieved by treatment. Again admitted two months later with fungating sore beneath chin and involvement of structures of neck. Died.

Of hand.—Male, æt. 53. C. Stated to have commenced as a wart; supra-condyloid gland involved; growth and gland removed.

Of digestive tract.—*a*. Of œsophagus causing stricture 3. All fatal.

1. Male, æt. 59. Died from exhaustion without any operation.

2. Male, æt. 45. Growth also involving larynx; tracheotomy performed.

3. Male, æt. 63. Died after gastrostomy.

b. *Of rectum*.—Male, æt. 60. Excision. Cured. Male, æt. 60. Excision; peritoneum opened to slight extent. Cured. Male, æt. 51. Excision of part of growth and then scraping.

Fatal case.—Male, æt. 54. Excision; two small glands removed at same time; peritoneum opened. Died from shock.

Generative organs.—M. 7, F. 4. C. 7, R. 4.

(*a*) Penis 6; all amputated; in 1 small nodule removed from abdominal wall, and later numerous small nodules removed from scar together with some glands.

(*b*) Scrotum. Æt. 30. Greengrocer. Growth removed together with some affected glands. Cured.

(*c*) Clitoris. Æt. 61. Removed with knife.

(*d*) Uterus. Æt. 30. Os scraped away with sharp spoon and then chloride of zinc paste applied. Æt. 50. Growth apparently involving broad ligament. No operation.

Bladder.—Male, æt. 58. Digital examination of bladder; growth of posterior surface and base of bladder. Relieved.

Sarcoma.

Of face.—Male, æt. 32. Recurrent growth of left temporal fossa and zygoma; also small nodule in ear, removed. Cured.

Of nose.—Females 2. Æt. 50, 79. In former case apparently springing from ethmoid, and in latter upper part of nasal bones and obstructing nasal duct. In neither case was any operative treatment used.

Of forehead.—Female, æt. 70. Large nodular growth involving left half of forehead. No operation.

Of jaw.—*a.* Upper: Male, æt. 46. Growth in left antrum, displacing eye; too extensive for removal. Female, æt. 49. Growth in left antrum extending into mouth and orbit; too extensive for removal. Female, æt. 51. Growth involving left antrum in lower part and hard palate; excision of left superior maxilla, excepting orbital plate, also hard palate. Cured. Female, æt. 8. Myeloid of right antrum and palate; removal of superior maxilla excepting orbital plate. Cured. Female, æt. 13. Spindle-celled growth of alveolar process; removed with portion of bone from which it was growing. Cured. Female, æt. 44. Similar case. Removed. Cured. *b.* Lower: Female, æt. 44. Tumour of alveolar process displacing teeth; removed. Cured. Female, æt. 25. Similar case. Growth removed by scraping and cautery. Cured. Male, æt. 43. Tumour involving greater part of right alveolus; glands beneath chin implicated; removal of right body of jaw. Died 12 hours after from shock. Spindle-celled sarcoma (microscopical).

Of tonsil.—Female, æt. 60. Growth noticed three months, involving right tonsil and neighbouring glands; removal of part of glandular swelling, a piece closely adherent to internal jugular vein being left. Relieved. Male, æt. 54. Noticed 1 year; tumour involving glands on right side of neck, secondary to tonsil, dyspnœa, tracheotomy, dysphagia. Died.

Of neck.—Male, æt. 63. Growth of right side of neck, firmly adherent to inferior maxilla; too extensive for operation. Male, æt. 35. Tumour situated just behind right angle of jaw; removed. Cured. Male, æt. 54. Similar case; removed. Cured. Female, æt. 60. Growth with fungating surface situated in posterior triangle; glands involved; removed. Cured.

Of ribs.—Male, æt. 60, tumour size of a man's head situated on right side of sternum below nipple line. No operative treatment.

Of back.—Male, æt. 30. Recurrent growth in right interscapular region, also apparently secondary growth in lungs; relieved.

Of breast.—Æt. 21, single. Right breast; noticed 9 weeks, glands in axilla enlarged; on attempting to remove the tumour it was found impossible to remove all the new growth as it infiltrated the pectoralis major very extensively. Relieved. Æt. 73, widow. Noticed 6 years; amputation of breast; cured. On section, tumour of soft, friable, extremely vascular material mixed with enchondroma, which was ossified in places.

Of upper extremity.—Male, æt. 21. Admitted with osteo-sarcoma of right forearm; later secondary growth in lungs with pleuritic effusion, for which para-

centesis was performed on three occasions; died. P.M.—Osteo-sarcoma of forearm, lungs, and pleura.

Of lower extremity.—Male, æt. 18. Admitted with periosteal sarcoma of lower end of right femur; amputation; cured. Male, æt. 23. Periosteal sarcoma of whole of left femur, excepting lower one fourth; amputation at hip-joint. Died from shock. Male, æt. 17. Sarcoma of upper part of right fibula; amputation of leg; cured. Female, æt. 13. Growth apparently taking origin in deep fascia of left leg close to fibula; amputation of leg; cured. Growth on section gelatinous.

Of kidney.—Male, æt. 3. Admitted with occasional hæmaturia and large tumour occupying place of right kidney; removed through loin; ureter and vessels ligatured separately; free drainage, and antiseptics; 5 days after operation epididymitis on right side; had no other interruptions to convalescence, and was discharged cured in 38 days. On section of kidney being made, the growth was found to have involved nearly the whole kidney, some apparently normal renal structure being left at the circumference of the growth. In structure, growth was soft, elastic, and in parts almost gelatinous, with here and there small hæmorrhages.

Of testes.—Æt. 29. Stated to have commenced after a blow four years previously; castration; cured.

Of lymphatic glands.

In neck.—Male, æt. 52. Noticed about 4 years; too extensive for removal.

In groin and axilla.—Male, æt. 49. Tumour in groin noticed 3 years; tapped 18 months ago; about this time a similar growth appeared in axilla of same side; both removed; cured.

In groin.—Male, æt. 17. Noticed 8 months; removed; patient's recovery was delayed by an attack of erysipelas; cured.

Ovarian disease.—C. 12, R. 5, D. 1.

Relieved.

1. Æt. 12. 3—4 months occasional pain in abdomen, 2 months swelling. Somewhat anæmic girl, with a fluid tumour arising from the left side of the pelvis. Operation not advised. In hospital 8 days.

2. Single, æt. 65. Uterine symptoms noticed for some years, due, it was said, to myo-fibroma. Slowly increasing swelling of the abdomen for 10 years. Swellings in the groins for 2 months. Hard solid resistant tumour, presenting characters of malignant growth. Ascites. Scattered nodules of new growth in the skin of the abdomen. Much emaciation and great pain. In hospital 4 days.

3. Æt. 25, single. Six months ago severe attack of pain in the left side of lower abdomen; she then noticed slight swelling; has had somewhat severe pain at intervals since. Very tender swelling in left iliac and lumbar regions, easily defined by percussion; ? dermoid. In the ward 28 days.

4. Readmission of No. 3. No operation performed. In the ward 6 days.

5. Widow, æt. 74. Tumour of abdomen noticed 4 years, slow and painless increase. Indigestion, vomiting, increased frequency of micturition. Large rounded tumour occupying the whole of the abdomen. Some ascites. Pain in abdomen and general symptoms improved. In hospital 31 days.

Cured.

1. *Æt.* 47, single. Incontinence of urine with the appearance of a small tumour 6 months. Multilocular cyst without adhesion, connected with right ovary. There was slight rotation of the pedicle. Solid matter weighed 4 pounds 10 ounces, fluid measured over 4 pints. Vesical catarrh during the after treatment, but left 28 days after operation.

2. *Æt.* 29, married, 6 children. Noticed swelling of abdomen about 3 days after confinement a month ago, with diarrhœa and sickness. Large circumscribed swelling to the left and below umbilicus, dipping into the pelvis. Slight evidence of ascites. Aspiration of the tumour; 3 ounces of thick yellow fluid, containing a large quantity of albumen and some pus cells. The swelling subsided, and the patient left 21 days after the tapping.

3. *Æt.* 38, widow, 1 child, *æt.* 22. Swelling of lower abdomen for 8 months, gradual and painless until a month ago. Urine sp. gr. 1020, albumen $\frac{1}{16}$ th. Multilocular cyst connected with right ovary without adhesions; 8 pints of fluid, 22 ounces of solid matter. The urine was examined before she left, 24 days later; there was then no albumen and no casts.

4. *Æt.* 34, married, 9 children, youngest 3 weeks. Swelling noticed since last confinement. Multilocular cyst, weighing 4 pounds 8 ounces, removed; much adhesion and a good deal of partly organised lymph, which required to be cut away. Much shock. Wound suppurated. Left the hospital 64 days after operation.

5. *Æt.* 52, single. Tumour found 6 weeks ago, after an attack of peritonitis. Adhesions to intestine, omentum, and abdominal wall. Multilocular cyst. Left 16 days after operation.

6. *Æt.* 46, married, 8 children, youngest *æt.* 5. Enlargement of abdomen noticed 18 months ago, more rapid for 2 months. Omentum and transverse colon adherent. Weight 5 pounds 13 ounces, fluid $4\frac{1}{2}$ pints. Left 20 days after operation.

7. *Æt.* 51, single. Increase in size of abdomen for 7—8 years, more marked during the last 2—3 months. Cyst chiefly unilocular, contained $15\frac{1}{2}$ pints of fluid; no adhesions. Was in hospital 23 days after operation.

8. *Æt.* 30, married, no children. Slight swelling in right side for 5—6 years, and for the last 9 months increasing swelling. Tapped 9 weeks before admission, and 9 quarts of light-coloured fluid removed. Several firm adhesions. One large cyst, with smaller ones and some solid matter. Right ovary diseased. Left hospital 23 days after operation.

9. *Æt.* 66, widow, 6 children. Swelling of abdomen for 12 months. Multilocular cyst; slight anterior adhesions. Solid matter 4 pounds 7 ounces, fluid 17 pints. Left the hospital 21 days after operation.

10. *Æt.* 47, married, 10 children. Swelling for 12 months. Multilocular cyst without adhesions. Left hospital 35 days after operation.

11. *Æt.* 30, single. Small swelling noticed 4 years ago; very gradual increase in size; 6 weeks ago severe attack of pain. Multilocular cyst, but one chief one. Right ovary diseased; 2 or 3 firm adhesions. Left 30 days after operation.

12. *Æt.* 51, married, 13 children, 1 miscarriage 18 years ago. Symptoms for 3 months only. Multilocular cyst of the right ovary, some firm adhesions. Left 31 days after operation.

Died.

1. *Æt.* 19, single. Symptoms 12 months. Solid tumour in connection with left ovary, the right one was diseased; adhesions. The left ovary was enlarged to the size of an orange. Ascitic fluid. Died next day with high temperature (106.2°), &c. P.M.—Sarcoma of glands. Pleuritic effusion. Pulmonary collapse.

CIRCULATORY SYSTEM.

Aneurysm.—C. 3, R. 1.

1. *Ilio-femoral and popliteal.*—Male, *æt.* 42, carman. No history of syphilis. 6—7 weeks pain in the right groin and noticed swelling; ilio-femoral aneurysm. Increase in size of the aneurysm, and swelling of the right leg and foot came on during the first 10 days whilst under observation, and another aneurysm was found in the left popliteal space, the shape and size of a hen's egg. On the 10th day ligature of the right external iliac was performed. On the 45th compression of the left femoral by relays of dressers, which was continued for 24 hours; galvanopuncture was also performed. When the patient left after a residence of 76 days there was slight recurrent pulsation in the ilio-femoral aneurysm.

2. *Femoral.*—*Æt.* 31, packer. Was under treatment in 1883 (see 'Hospital Reports' 1883, "Surgical," p. 482) for (left) femoral aneurysm in Hunter's canal, and was cured by digital compression in 6 hours. The present swelling came on above the position of the old one 7 days ago. The patient has extensive valvular disease. Digital compression tried ineffectually for 30 hours, and 7 days later the superficial femoral was tied. He left cured 50 days later.

3. *Axillary.*—*Æt.* 33, farm bailiff. Was successfully treated by means of digital compression for popliteal aneurysm in 1882. Present swelling noticed for 7 months. Five days after admission the subclavian tied in its third part. Left hospital 25 days later. See 'Lancet,' p. 802, vol. ii, 1885.

4. *Subclavian.*—*Æt.* 45, labourer. Strain of the arm 6 months ago, followed by appearance of swelling over mid-third of right clavicle. Aneurysm of third part. Operative measures refused.

Cirroid Aneurysm.

Female, *æt.* 24. Admitted May 28th, and died September 27th, after a residence of 149 days. Congenital swelling on right side of the face with increase in size for 3 years. Diffuse soft pulsating swelling in the cheek. A number of pulsating arteries can be felt chiefly in posterior part. Brown pigmentation of the skin over and for some distance beyond the swelling. Increased heat over the tumour. Diffuse thrill over right clavicle. June 18th.—Ligature of large thin-walled vessel, probably common carotid. Wound closed, but abscess developed over seat of ligature. July 30th.—Four platinum wires passed through the swellings, powerful current passed through. 31st.—Hæmorrhage from sinus left after discharge of abscess. Carotid ligatured below the omohyoid, and a second ligature placed above the old one. August 4th.—Hæmorrhage from the distal end, severe; wound opened up and vessels secured; diarrhœa. Slight bleeding on August 16th, 28th, 29th, 30th. On August 31st wound again opened up, and

all the bleeding points secured. The left external carotid was also tied. September 15th.—More hæmorrhage, which was partly arrested with plugging. 16th.—Wound reopened and 3 main points, including the lingual and sup. thyroid arteries, ligatured. Exhaustion. There was no difficulty with the left wound. P.M.—The right common carotid opposite the wound was obliterated. Above and below the ligature adherent organised clot was found. On the right side of the neck the innominate artery, the first part of the right subclavian, and the lower part of the right common carotid were full of soft breaking-down clot. The upper part of the right common carotid was full of pus. The upper wound on the right side was gaping, and led directly into the right common carotid. Other vessels, including the internal and external carotid, were seen on the floor of the wound, but securely tied. The lower wound on the right side was nearly healed, a small sinus was found leading down through a hole in the wall of the common carotid (about its middle) into the lumen of the vessel at the junction of the pus and decomposing clot.

GENITO-URINARY SYSTEM.

Hydrocele.—C. 6, R. 1, U. 1. Right 2, left 3, double 2, of cord 1. Tapping only 1, incision of sac 4, castration 1 (very old, small, thick-walled sac). *Complications*.—1 retention; 2 had been tapped 3 times previously, 1 had been tapped once, 1 had also been injected.

Varicocele.—C. 14, R. 1. 1 recurred after previous operation of ligature; 1 pyæmia and dementia after operation, C.; 5 had retention afterwards. 1 had encysted hydrocele, cured by the operation.

Retention of urine.—Males 15. C. 9, R. 2, D. 4. Gonorrhœa with old stricture 1, stricture 11, phimosis 2, spasmodic 1. *Treatment*.—Aspiration of bladder and subsequently catheterisation 2, catheter only 4, perinæal puncture 2, incision of prepuce 2, hot bath 1 (see also fatal cases). *Complications*.—Hæmorrhage from urethra 1, rigors 2, cystitis and hæmaturia 1, hæmorrhage from perinæal wound 1.

Fatal cases.

1. Æt. 42. Fourteen days partial retention, unsuccessful attempts at catheterisation outside, perinæal puncture, hæmaturia, internal urethrotomy, urine passed per anum, rigors. P.M.—Acute cystitis, surgical kidney, false passages into bladder and rectum.

2. Æt. 40. Retention for 24 hours, stricture, hot bath, perinæal puncture, hæmorrhage from wound, rigor. Lived 4 days, collapse; ? renal disease. No P.M.

3. Æt. 67. Partial retention for 7 days, impassable stricture, perinæal abscess, perinæal puncture, cystitis, renal disease. Lived 32 days. No P.M.

4. Æt. 34. Retention 1 day, unsuccessful attempts at passing catheter before admission, unsuccessful attempt at perinæal puncture, puncture per rectum, rigors, pyæmia (q. v.). Lived 5 days.

Stricture of urethra.—31. C. 24, R. 7. Traumatic 2, following gonorrhœa 25, 1 ascribed to operation for stone, 1 for perinæal abscess, no cause assigned 2.

Complications.—Retention 1, atony of bladder and epididymitis 1, cystitis 1, hydrocele 1, enlarged prostate 1, perinæal abscess 2, hæmorrhage from urethra 1, cystitis and renal disease 1, abscess of neck 1. *Treatment*.—Interrupted dilatation by means of catheters 15, continuous 5, internal urethrotomy 6, external 1, perinæal section 2, perinæal puncture and catheterism 1, perinæal puncture and afterwards perinæal section 1.

Extravasation of urine.—C. 1, D. 2. All due to stricture; in 1 extravasation had existed for 5 days; perinæal section and later internal urethrotomy was performed.

Fatal cases.—Æt. 43. Extravasation noticed for 7 days, perinæal section, died 2 days later from exhaustion. No P.M.

Æt. 81. Extravasation of urine, due to impacted calculus, 4 days; perinæal section and digital exploration of bladder, from which several small stones were removed. P.M.—Chronic cystitis, calculus of bladder, 386 gall-stones in the gallbladder.

Calculus vesicæ.—Males 10. C. 9, D. 1. Successful cases: symptoms noticed for 6 weeks, 4 months, 6 months, 12 months, 18 months, 24 months (2), 4 years (2), 3 years. Operations performed: lithotomy 5, lithotripsy 4, lithotripsy and then lithotomy 1, oxalate of lime stones 4, uric acid and phosphates 2, mixed 4. Hæmaturia and epididymitis after lithotomy 1, hæmorrhage from wound after lithotomy 1.

Fatal.—Æt. 41. Symptoms for 4 years. Stricture of urethra, for which internal urethrotomy was performed, lateral lithotomy, sloughing wound, typhoid condition, uræmia. No P.M. (The urine gave evidence of extensive renal disease.)

Calculus urethræ.—Æt. 13. Retention 1 day, perinæal section.

Gonorrhœa (admitted as such).—Females 30. C. 18, R. 10, U. 2. *Complications*.—Erysipelas 1, buboes 3, adenitis 1, hæmorrhoids 2, warts 2, œdema of labia 2, endometritis 5, sore on thigh 1, fissure of anus 3, sinus of labium 1, ulcer of tonsil 1. Refused treatment 2.

Soft Sore.—Males 10, females 7. C. 16, R. 1. Phagedænic: males 4, females 1. *Complications*.—Phimosis 5, requiring incision 4, gonorrhœa 5, bubo 3, fistula in ano 1.

DISEASES OF THE LOCOMOTORY SYSTEM.

Of hip-joint.—Males 36, females 29. C. 21, R. 38, D. 6. *Incipient*.—Right 9, left 7. *Causes*.—Fall or injury 9, measles 1, ? rheumatism 1. No known cause 5. Family history of phthisis in 4, of doubtful chest mischief 2, syphilis 1. *Complications*.—Eczema and tinea tarsi 1, pertussis 1. *Chronic*.—Right 18, left 20, double 1. *Causes*.—Fall or other injury 14, typhoid 3, ? rheumatism 1, other joint disease 1. No cause known in the remainder. Family history: phthisis 12, cardiac mischief 2, struma 2, rheumatism 1. *Complications*.—Spinal disease 3, enlarged

glands 2, pertussis 1, scarlet fever 1, hæmatemesis 1, erysipelas 1, abscess of leg 1. In 9 cases there was well-marked abscess, in 10 sinuses, displacement 5. Excision of joint 13, incision of joint 1, sequestrotomy 2. See General Table.

Fatal cases.—Male, æt. 27. Incipient mischief of hip, phthisis. Lived 75 days. P.M.—Acute pulmonary tuberculosis, disease of hip. Female, æt. 4. Died after removal of necrosed bone. No P.M. Male, æt. 11. Acute symptoms in hip for two days, very high temperature, delirium, excision of hip, pus in joint. Died 9 hours after operation. P.M.—Pyæmia. Male, æt. 17. Left hip; 18 months: abscesses; excision of joint, erysipelas, pus in knee, aspiration of knee twice, amputation of hip, necrosis of acetabulum. Lived 578 days. No. P.M.

Female, æt. 11. Readmission; sinuses remaining from excision of joint. Amyloid disease. Lived 149 days. P.M.—Amyloid disease of viscera.

Female, æt. 32. Excision of hip as a child, abscess now over hip and unhealed sinus. Bronchitis. P.M.—Aortic and mitral disease, with congestion of internal organs.

Of knee-joint.—Males 25, females 31. C. 32, R. 23, U. 1. *Incipient.*—Cause unknown (acute suppuration) 1; puerperal 3; removal of a bursal tumour 1. Epiphysitis with acute suppuration 1; congenital syphilis with similar condition 1; twist of knee 1; other injuries 4. Family history of phthisis in 2; syphilis 1. *Complications.*—Phlebitis 1; disease of wrist 1; nephritis 1. *Operations.*—Paracentesis 1; incision 4; incision and then amputation 1. *Chronic.*—Males 7, females 12. C. 6, R. 13. *Causes.*—Injury 4; syphilis 1; tabetic arthropathy with suppuration in joint (see 'Lancet,' Sept., 1885). Cause unknown in the remainder. Family history of phthisis 6; rheumatism 3; gout in 10, not known in the others. *Complications.*—Abscess outside joint 1; spinal mischief 3; old hip disease 1; subcutaneous abscesses 1; excision of joint 1; aspiration of knee 1; amputation of thigh 2; amputation refused 1; gonorrhœal 2; double 1. *Rheumatoid.*—5. *Anchylosis.*—Right 2, left 2, both 1, also of wrist. 1 due to synovitis, 3 to falls, 1 to rheumatism; 1 no cause known. History of phthisis in 1. *Loose bodies.*—4 males. 3 excision of cartilage, in 1 the semilunar cartilage was displaced, no operative treatment recommended. *Old excisions.*—Males 2, females 1. 2 left, 1 right. In 2 there was deformity, in both operation required. 1 with sinuses, which were cured by scraping.

Of ankle-joint.—Males 13, females 5. C. 12, R. 6. *Incipient.*—Right 1, left 2. Traumatic 2. *Complications.*—Soft sores 1. *Chronic.*—Right 8, left 5, not stated 1. Family history of phthisis 3; other joint disease 1. *Causation.*—7 injury; 1 other evidence of struma; 1 patient phthisical, ? 5; amputation of leg 3; Syme's amputation 2. *Complications.*—Ulceration of foot 1; abscess of leg 1; anchylosis of left foot, male 1, due to fracture near joint.

SUMMARY OF INJURIES.

GENERAL INJURIES.

Burns.—Males 21, females 22. C. 24, R. 2, D. 17. General 9; face 2; face and hands 4; face and neck 2; face, neck, and back 1; face and arms 3; neck, trunk 2; head and arms 1; upper extremity only 4; arm and thigh 1; trunk and leg 1; buttock and vulva 1; lower extremity 10. *Causes.*—Explosion of or upsetting paraffin in oil lamp 9; falling into fire 10, of which 6 were epileptic; clothes catching fire 12; fire in dwelling 3; molten glass 1; melted fat 1; fall on hot poker 1; sulphuric acid 1; heated lamp glass 1; gas explosion 1; naphtha 1.

Treatment.—Carron oil 34; olive oil 2; Cat. Lini. 2; terebine and oil 1; iodoform and vaseline 3; Lot. Sodæ Chloratæ 1.

Complications.—Retention of urine 2; vomiting 2; erysipelas 3; epileptic seizures 2.

Fatal.—Males 9, females 8.

Æt. 11 months, 2 months, 2 years 10 months, (2) 3 years, 4 years, 6 years, 15 years, 64 years. Shock.

Æt. 2 years 3 months, 29 years, 36 years, 52 years. Exhaustion.

Æt. 1 year 2 months. Gangrene of extremities.

Æt. 2 years 6 months. Syncope.

Æt. 15 years. Vomiting, delirium and coma, ? renal.

Æt. 2 years. Vomiting and convulsions.

Scalds.—Males 17, females 11. C. 22, D. 6. General 5; face 1; face and neck 1; face and chest 1; head and shoulders 1; trunk 3; neck, thigh, and knee 1; leg, abdomen, and back 1; arms, legs, and back 1; arms and legs 2; lower extremities 11. *Causes.*—Upset of teapot 2; kettle 8; teacups 2; saucepans 2; cans 1; boiling tar 2; boiling fat 1; sucking spout of kettle 2; falling into tub 1; copper 1; pail 1; hot water (? manner) 3.

Treatment.—Steam kettle and tent 2; iodoform and vaseline 2; Cat. Lini. 1; Ol. Olivæ 1; Carron oil 22.

Complications.—Erysipelas 1; vomiting 2; diarrhœa 1; vomiting and diarrhœa 3.

Fatal.—Males 5, female 1.

Æt. 1 year, 1 year 2 months, 1 year 10 months, 3 years. Shock.

Æt. 11 months. Vomiting, diarrhœa, exhaustion.

Æt. 8 years. Diarrhœa, syncope.

LOCAL INJURIES.

HEAD.

Scalp wounds.—Males 45, females 12. C. 52, R. 2, D. 1. Exposed bone in 22; marked hæmorrhage 9; wound of artery 2; followed by traumatic aneurysm 1; slight concussion 15; epileptic 2; convulsions 1; delirium tremens 1. *Complications*.—Fracture of ribs 2, one of which had bronchitis; fracture of radius 1; clavicle 1; dislocation of finger 1; contusion of clavicle 1; wound of arm and erysipelas 1; scald of forearm 1.

Fatal case.—Male, æt. 32. Bullet wound of centre of forehead, starred, bullet found after incision, flattened and forming a mere disc over the frontal bone; no fracture, no depression, delirium with incontinence followed, and he died suddenly 12 days later. P.M.—Emphysema of lungs, dilatation of right ventricle. (See 'Trans. of Path. Soc.')

Concussion.—Males 49, females 18. C. 67. Irregularity of pupils 9; hæmorrhage from the ear 2, nose 2; subconjunctival 2; epileptic 1; convulsions 2; meningitis and optic neuritis 1, 1 of which developed a squint, 1 right hemiplegia. Other injuries: scalp wounds 3; hæmatoma of scalp 9; retention of urine 2; fracture of clavicle 4; synovitis of knee 1; dislocation of clavicle 1; fracture of femur, ribs, and tarsal bones 1; contusion of shoulder 1; wound of eyelid 1; throat 1.

Fractures of the skull.—A. *The vault*. Males 12, females 5. C. 9, U. 1, D. 7.

1. *Simple*.—Males 2, females 2. C. 1, U. 1, D. 2. Male, æt. 8 months. Depression over right parietal after a fall on the floor, vomited once. Female, æt. 9 years. Large irregular depression, the result of a fall on the head when 4 months old. Epileptic—idiot. No operation advised. Female, æt. 69. Knocked down by a cab. Unconscious. Hæmorrhage from left ear and nose. Pupils unequal and not acting to light; hæmatoma of scalp. P.M.—Fracture of occipital bone, extending to foramen magnum. Contusion of brain. Disease of lungs and kidneys. Male, æt. 23, carman. Lived 5 days. Hæmorrhage and œdema about a ruptured eyeball. Fracture of right frontal extending into the roof of the orbit.

2. *Compound*.—Males 6, females 3. C. 7, D. 2. Males, æt. 8, 29, and 8. Female, æt. 4. Fissured fracture of the frontal bone. Females, æt. 46, 40, and male, æt. 26. Fissured parietal. *Complications*.—Compound comminuted fracture of leg requiring amputation 1; erysipelas 1.

Fatal cases.—Male, æt. 50, Lived 5 hours. Railway injury. P.M.—Fracture of parietal and squamous bones, of spine and ribs. Extravasation of blood

chiefly in the back. Male, æt. 35. Lived 9 days. P.M.—Fracture of entire vault, extending into the posterior fossa. Contusion of brain; hæmorrhage.

Compound depressed.—C. 1, D. 1. Male, æt. 51. Well-marked depression in the right frontal region, scalp being lifted off. No symptoms. Patient refused operation. Male, æt. 63. Lived 1 day. P.M.—Depression in occipital region on the right side. Contusion of cerebellum.

Compound comminuted.—D. 2. Male, æt. 50. Railway injury, extensive comminution, protrusion of brain, bone elevated. Lived $8\frac{1}{2}$ hours. Unconscious the whole time, temperature rose to $107\cdot2^{\circ}$, half an hour after death. Male, æt. 43. Railway injury, much comminution on the right side. Lived $15\frac{1}{2}$ hours. Temperature rose to $108\cdot6^{\circ}$ half an hour before death. No P.M.

B. *Fractures of the base.*—Males 12, females 4. C. 10, D. 6.

Cured.—Males 7, females 3. Hæmorrhage, from left ear 3, right 3, nose 5, subconjunctival 3, over mastoid 1. Insensible when admitted 7; suffering from severe shock 1. During treatment, vomiting occurred in 7 cases, 3 were delirious, and 2 had involuntary evacuations. Cerebro-spinal fluid flowed from the ear for 10 days 1 case; offensive discharge from the ear followed hæmorrhage in 2; deafness 2; paralysis of external rectus in 2; optic neuritis 3. *Complications.*—Fracture of the forearm and bones of face 1; scalp wound 2; contusion of elbow 1.

Fatal cases.—Males 5, female 1.

Female, æt. 5. Run over; lived $5\frac{1}{2}$ hours. Completely unconscious and collapsed; free hæmorrhage from the right ear; temp. rose to $107\cdot6^{\circ}$ ten minutes after death. P.M.—Fracture across the base from the squamous portion on one side to the corresponding point on the other. After the removal of the skull-cap the anterior part of the base was freely movable on the posterior.

Male, æt. 7. Lived 10 days. Unconscious. Hæmorrhage from ears and nostrils. Left internal strabismus. Meningitis, optic neuritis, hemiplegia. No P.M.

Æt. 9. Run over; lived 2 hours. Unconscious. Hæmorrhage from ears, nose, and left eye. P.M.—Fracture commencing in the right cerebellar fossa and extending to the jugular foramen. About the centre of this another ran outwards for two thirds of an inch, and then went directly forwards, passing right through the centre of the right petrous bone. It then turned inwards and ended at the foramen ovale. At the junction of the right petrous and squamous bones there is another slight linear fracture.

Male, æt. 33. Lived 15 minutes. Unconscious. Hæmorrhage from ears, nose, and mouth. Fracture of clavicle and ribs. P.M.—Multiple fissured fracture of the vault and base of skull on the right side, involving the parietal and middle fossa of the base. Extensive hæmorrhage on the surface of the brain.

Male, æt. 55. Lived 3 days. Unconscious. No hæmorrhage from nose, mouth, or ears. Violent delirium; epistaxis; melæna. For last 2 days constant spasmodic movements of the muscles of the face on both sides. Respiratory movements very shallow. P.M.—Three distinct fractures of the base—(1) a linear one, comminuted in one place, through the roof of the right orbit,

passing from before backwards and then inwards to just behind the crista galli ; (2) through the greater wing of the sphenoid on the left side ; (3) passing backwards to the middle of the occipital bone on the right side, from a point just behind the petrous part of the right temporal, but not extending through the bone. Whole surface of the brain covered by hæmorrhage. The fore part of the frontal lobes was much contused, as also the cerebellum.

Æt. 40. Lived $5\frac{1}{4}$ hours. Fall of 13 feet. Unconscious. Epileptiform seizures almost continuous ; hæmorrhage and flow of clear fluid from right ear ; emphysema on right side of chest. The temperature at death was 110° . No P.M.

INJURIES OF THE ABDOMEN, CHEST, SPINE, AND PELVIS.

Injuries of the abdomen.—Wounds.—C. 1, D. 1. Males 2. 1 valvular wound above umbilicus with protrusion of omentum. 1 fatal, æt. 33. Wound to left of umbilicus, through which intestine protruded, and caused by gas explosion. Wound enlarged under antiseptic precautions. Died from shock and internal hæmorrhage. P.M.—Abdominal cavity filled with blood. A piece of crockery-ware found loose ; two wounds of intestine ; mesentery bruised ; also contusion of lungs.

Injuries.—Males 13, females 3. C. 11, D. 5. There was no symptom beyond slight shock in 3. In 4 the shock was marked, and in 2 others there was marked collapse (not counting the fatal cases). Hæmaturia 5, hæmatemesis 1, vomiting 4, peritonitis 2, fracture of rib 1, congenital hydrocele 1.

Fatal cases.—Male, æt. 21. Kicked by horse in abdomen the day before. Contusion of abdomen with peritonitis. Died $7\frac{1}{2}$ hours later. P.M.—Rupture of small intestine ; peritonitis.

Male, æt. 30. Platelayer. Crushed between buffers. Admitted 2 hours after the accident in a state of collapse. Vomiting of dark-coloured blood. Died the following day. No P.M.

Male, æt. 22. A porter. Knocked down by engine. Shock ; much pain in lower abdomen and about lower edge of liver. Vomiting 3 or 4 hours ; delirium ; death. P.M.—Injury to small intestine ; rupture of mesentery ; early peritonitis.

Female, æt. 7. Run over. Collapsed. Abdominal pain. Died same day. P.M.—Rupture of small intestine ; extravasation of contents ; early peritonitis.

Female, æt. 3. Run over. Collapsed. Contusion of leg and abdomen. Frequent vomiting. Lived $4\frac{1}{2}$ hours. P.M.—Perforation of duodenum ; rupture of mesentery.

Fractures of ribs.—Males 18, females 2. C. 19, R. 1. Shock 4, vomiting 2, hæmoptysis and emphysema 1, hæmoptysis 2, emphysema 3, bronchitis 3, hæmaturia 1, wound of forehead 1, fracture of clavicle 2, contusion of buttock 1, retention of urine 2, sebaceous cyst 1.

Fractures of the spine.—Males 8. C. 1, D. 7. Recovered. Male, æt. 23. Fall from a height of 11 feet. Paraplegia, with partial loss of sensation; tenderness over dorsilumbar spines; cystitis; washing out of bladder; orchitis. Was in hospital 164 days.

Fatal.—Male, æt. 66. Fell downstairs. Lived 9 days. P.M.—The 5th cervical was widely and completely separated from the 6th by rupture of the intervertebral disc, which was torn horizontally in two. At the edges the vertebræ were slightly fractured. Cord contused and softened; no hæmorrhage; no meningitis.

Æt. 30. Lived 2 days after falling forwards with his head against a wall. Fracture of cervical spine about the 5th. No P.M.

Æt. 43. Fall of 30 feet. Lived 1 day. P.M.—Fracture of the laminæ of 5th, 6th, and 7th cervical, and of the bodies of the 6th and 7th. Anteriorly opposite the 6th and 7th cord softened, and there was a small hæmorrhage.

Male, æt. 20. Fell from swing. Lived 2 days. Fracture of the cervical spine. No P.M.

Æt. 55. Fall. Lived 7 hours. Scalp wound with fissure of parietal. Fracture high up. Temp. before death 105·2°. No P.M.

Æt. 57. Fell through hole in a loft 13 feet. Lived 4 days. Extravasation amongst lumbar muscles. Spines of 2nd, 3rd, 4th lumbar vertebræ, and some of transverse processes were fractured. Hæmorrhage outside the dura mater.

Male, æt. 50. Fall of 14 feet on some bricks. Lived 14 days. Fracture of 6th dorsal. Scalp wound; hæmorrhage into cord; cystitis; pyelitis; hypostatic pneumonia; granular kidney; gout.

Dislocation of spine.—Male, æt. 20. Knocked down in a brawl. Lived 24 hours. P.M.—Dislocation of 5th and 6th cervical vertebræ; extravasation into muscles of neck; scalp wound.

Fractures of pelvis.—Males 5, females 2. C. 5, D. 2.

Male, æt. 8. Run over. Fracture of right ilium and clavicle.

Male, æt. 2½. Run over. Fracture of right ilium.

Male, æt. 60. Fall with and under horse. Fracture of left ilium, clavicle, and ribs; pneumonia.

Female, æt. 3½. Run over. Fracture of pubes; laceration of bladder; hæmatoma of scalp; vomiting. Abscess above right Poupart's ligament. Necrosis of cartilage of pubes. Small calculus passed. In hospital 84 days.

Female, æt. 24. Position of fracture uncertain. Fell from window.

Fatal.

Male, æt. 45. Fall of 25 feet. Fracture of sacrum; contusion of left thigh; cystitis; thrombosis of femorals. Lived 36 days. P.M.—Fracture of sacrum; cystitis; thrombosis of the femoral veins. (See 'Lancet,' p. 947, vol. ii, 1885.)

Male, æt. 71. Knocked down by an engine. Fracture of ramus of pubes; hæmaturia of buttock; shock. Lived 5 hours. P.M.—Comminuted fracture of right horizontal ramus of pubes; fracture of left ramus.

INJURIES OF THE UPPER EXTREMITIES.

Wounds.—Males 21, females 5. C. 23, R. 3. Of the axilla 1 (punctured). Of the arm 5, forearm 4, hand 11, fingers 5. Of the right side 15, left 10, both 1. Bullet wounds 2, incised 2, punctured 2, lacerated 7, lacerated and contused 9, contused 3. Tendons divided 2, with fracture of bones 2, followed in 1 by necrosis, in another by suppuration in the palm.

Dislocations—

Of clavicle.—Male 1. Sternal end.

Humerus.—Males 4, females 2. C. 2, R. 4. Subcoracoid; 1 reduced, 1 partially reduced. Unsuccessful attempts in 2, in 1 excision of head performed.

Elbow.—Males 2, female 1. C. 2, U. 1. Ulna backwards 1, reduced by manipulation, wound of arm complicating. In 2 cases of old-standing dislocation, one of which obtained an excellent arm after excision. The other refused operation.

Thumb.—Male 1. Distal joint; not reduced.

Fractures—

Humerus.—Males 6, females 3. C. 9.

Simple.—Males 3, females 2. Due to indirect violence 4, direct 2, of the left side 2, right 3, into elbow-joint 1, with subcoracoid dislocation 1, complication, broncho-pneumonia 1.

Comminuted.—Left. Direct violence. Scalp wounds.

Compound.—Males 2, female 1. Also comminuted 2, right 2, left 1, amputation in 3. Tramcar accidents 2, machinery 1.

INJURIES OF THE LOWER EXTREMITIES.

Dislocations—

Hip.—Males 2, female 1. C. 2, R. 1.

Female. Of both hips, congenital.

Male, æt. 8. Knocked down by tramcar; dorsal of left hip; manipulation; anæsthetics.

Male, æt. 49. Fall on left hip; thyroid; manipulation; anæsthetics; the dislocation first became dorsal and was then reduced.

Knee.—Male, æt. 40. Tibia displaced inwards; rupture of ligament; manipulation under anæsthetics.

Patella.—Male, æt. 18. Tendency to genu valgum; hit the knee when going upstairs; outward displacement; easily reduced.

Foot.—Male, æt. 16. Stone fell on him; foot displaced inwards and fibula fractured. Female, æt. 26. Of astragalus outwards, compound. Portion of

bone protruding, including the head, was removed. Suppuration in tarsus followed; refused amputation; died pyæmia in 19 days. Male, æt. 15. Thrown from a cart, metatarsal bones displaced upwards; reduced under anæsthetic.

Fractures of femur.—Males 52, Females 25. C. 75, R. 1, D 1.

Simple.—Males 48, females 20. C. 67, D. 1. Of these 30 were of the right, 35 of the left, and 2 not stated; whilst 22 were caused by direct, and 43 by indirect violence; in 2 it was uncertain, 1 being possibly broken by muscular action; 1 separation of lower epiphysis; non-union in 3; 1 admitted for this condition; in 3 of these the fragments were wired, and in 2 amputation was afterwards required; this was followed in 1 case by secondary hæmorrhage, for which ligature of femoral was performed. There were 2 refractures; 1 greenstick; 1 comminuted fracture, and 1 double fracture of the bone; delayed union 2; fragilitas ossium in 2 patients; rickets 1. *Complications.*—Fracture of the other femur 1; tibia and fibula 1; fibula 1; scalp wound 1; effusion into knee-joint 1; retention of urine 2; ulcer of leg 1.

Fatal case.—Male, æt. 87. Fracture of right femur, due to fall during giddiness. Retention of urine; arteries much degenerated. Gradual failure. No definite symptom. Lived 34 days. No P.M.

Compound.—Female, æt. 42. Fell downstairs. Fracture of lower third of right femur; the oblique end of upper fragment required removal before the fracture could be reduced.

Compound comminuted.—Female, æt. $2\frac{1}{2}$. Run over by tramcar. Left thigh almost separated. Amputation.

Neck of femur.—Males 4, females 3. C. 6, R. 1. Intracapsular, impacted: males 3, females 2. Right side 4, left 1; unimpacted, male æt. 15. ? Separation of epiphysis. Extracapsular, unimpacted: female, æt. 67. Erysipelas of face.

Fractures of patella.—Males 13, females 7. C. 20. Right 10, left 10. Caused by muscular action 11; by direct violence 8; ? 1; refractures 3. *Complications.*—Fracture of tibia and fibula 1; tibia 1; acute synovitis of knee 1; retention 1.

Fractures of the tibia.—*Simple.*—Males 20, females 11. C. 26, R. 5. 10 of the right and 18 of the left; ? 3. 10 due to direct, and 21 to indirect violence. Of these 17 were transverse; 1 greenstick; the remainder apparently oblique.

Compound.—Males 2. Æt. 19 and 30. Both left. 1 with wound of anterior tibial artery required amputation. The other healed under antiseptic treatment.

Fractures of fibula.—Males 40, females 12. C. 38, R. 14. Rupture of internal lateral ligament 8. Right side 20, left 32. 6 due to direct; the remainder, 36, to indirect violence; refractures 1; effusion in ankle-joint 1; fracture of radius 1; contusion of shoulder 1; of leg 2; necrosis 1; vaginal discharge and warts 1.

Fractures of tibia and fibula.—Males 84, females 24. Cured 86, R. 20, D. 2.

Simple.—Males 69, females 23. C. 71, R. 20, D. 1. Of the right leg 46; left 44; ? 2. Of these 28 were caused by direct and 63 by indirect; 1 not known. Comminution in 1; followed by suppuration 1; previous fracture 2. *Complications.*—Scalp wounds 2; wounds of leg 3; shock 1; fracture of astragalus 1; of ribs and bronchitis 1; tertiary syphilis 1.

Fatal case.—Female, æt. 34, married. Run over. Fracture just above ankle, with wound of external malleolus. Pregnant. One month later erysipelas. Miscarriage the day before death. P.M.—Peritonitis and ? septicæmia.

Compound.—Males 10, female 1. C. 11. Of the right leg 5; caused by direct violence 5; by indirect 6. It was necessary to remove bone in 2; amputation in 1; 1 treated with collodion; the remainder antiseptically. *Compound comminuted*.—Males 5. C. 4, D. 1. Amputation required in 3, of which 1 died. Left 4; right 1; caused by indirect violence 2.

Æt. 64. Fall from ladder. Primary amputation of the leg; antiseptics failed; sloughing; slight attacks of hæmorrhage; delirium. No P.M.

SPECIAL TABLE I.—*Hernia.**Inguinal Hernia.*

No.	Occupation.	Sex.	Age.	Duration of hernia.	Duration of strangulation.	Treatment.	Structure of hernia.	Result.	Remarks.
1	Costermonger	M.	16	7 weeks	—	Ice, rest	Enterocoele	C.	
2	Errand-boy	M.	16	4 hours	—	Ice, truss	"	C.	
3	Labourer	M.	19	7 days	—	Pad and bandage	?	R.	
4	Nil	M.	80	? years	—	Truss	Entero-epiplocele	R.	
5	Metal worker	M.	33	17 years	—	Radical cure	"	C.	Tumour partly reducible. Omentum adherent to sac, ligatured and removed. Pillars approximated. Considerable suppuration of scrotum followed reactionary hæmorrhage.
6	Child	M.	2½	Congenital	—	"	Enterocoele	D.	Peritonitis, eleven days after operation.
7	Brass finisher	M.	29	9 years	—	Truss	Epiplocele	R.	Operation performed later for radical cure. Double hernia.
8	Joiner	M.	28	4 weeks	—	Ice bag, truss	Enterocoele	C.	Irreducible for one day.
9	Carpenter	M.	26	4 years	—	Truss	Entero-epiplocele	R.	
10	Metal shaper	M.	33	6 years	—	"	Enterocoele	R.	
11	Engineer	M.	33	3 months	—	Ice bag, truss	Entero-epiplocele	R.	Irreducible for three weeks. Diminished in size with rest and ice.
12	Lighterman	M.	49	28 years	—	Ice	"	R.	Irreducible for eight years.
13	Farrier	M.	44	5 years	—	Ice, truss	"	C.	Irreducible for ten days.
14	Baker	M.	45	17 years	4 days	Ice	"	C.	Symptoms slight.
15	Clerk	M.	25	Congenital	½ hour	"	"	C.	
16	Machinist	M.	23	2 years	6 hours	"	"	C.	
17	Labourer	M.	65	12 years	4 hours	Ice, taxis	"	C.	Shock and vomiting.
18	Butcher	M.	31	12 years	5 hours	Ice	"	C.	Vomiting, pain. Developed delirium tremens.
19	Night watchman	M.	65	22 years	6 hours	"	"	C.	Vomiting, pain.
20	Barman	M.	35	8 years	4 days	"	"	R.	

21	Labourer	M.	16	—	3 hours	"	? Enterocoele	C.	Acute condition, possibly some rupture of muscle.
22	Single	F.	19	12 months	7 days	"	"	R.	No vomiting, incomplete strangulation.
23	Child	M.	5	3 years	2 days	"	"	C.	Irreducible 7 days.
24	Printer	M.	71	18 months	—	"	Epiplocele	C.	
25	Bargeman	M.	56	9 years	3 hours	Ice, taxis	Enterocoele	C.	
26	Greengrocer	M.	26	3 years	12 hours	Taxis	"	C.	
27	Clerk	M.	25	Congenital	6 hours	Ice, taxis	Entero-epiplocele	C.	
28	Greengrocer	M.	26	3 years	1 day	"	Enterocoele	C.	See No. 26.
29	School	M.	9	Congenital	2 days	Sac opened	"	C.	Radical cure, removal of sac and approximation of pillars of ring.
30	Labourer	M.	34	16 years	12 hours	"	"	C.	Ditto.
31	School	M.	11	3 years	"	"	"	C.	Ditto.
32	Inspector	M.	34	8 years	1 day	"	"	C.	Ditto.
33	Child	M.	7 mos.	Congenital	4 days	"	"	C.	Radical cure, removal of sac and approximation of pillars.
34	Married	F.	33	24 years	"	"	"	C.	Ditto.
35	Child	M.	1 mo.	Congenital	1 day	"	"	C.	Ditto (testis also removed).
36	Engineer	M.	64	18 years	2 days	"	"	C.	Radical cure, removal of sac and approximation of pillars.
37	Blacksmith	M.	30	10 years	3 days	"	"	D.	Ditto. Post-mortem, part strangulated near middle of small intestine. Died from collapse.
38	Gardener	M.	55	12 months	5 days	"	"	D.	Artificial anus established. Gut gangrenous. There had been some reduction <i>en masse</i> and injury from prolonged taxis five and four days before admission. Gut strangulated was a portion 2½ inches above the ileo-caecal valve.
39	Carpenter	M.	34	? 3 years	24 hours	"	"	D.	Lived 5 days. Peritonitis. No P.M.
40	Married	M.	60	4 years	3 days	"	"	D.	Gut gangrenous. Artificial anus established. Lived 5 days. No P.M.

SPECIAL TABLE I.—Hernia (*continued*).*Femoral Hernia.*

No.	Occupation.	Sex.	Age.	Duration of hernia.	Duration of strangulation.	Treatment.	Structure of hernia.	Result.	Remarks.
41	Smith	M.	45	—	—	Truss	Enterocoele	R.	Inflammation terminating in abscess of the sac.
42	Married	F.	50	26 years	—	Hot fomentations	Enteroplocele	R.	
43	Teacher	F.	42	10 years	—	Rest, truss	"	R.	Sac dissected up and ligatured at neck. After removal of adherent omentum.
44	Married	F.	51	12 months	3 days	Sac opened	"	C.	Sac dissected up and ligatured.
45	Widow	F.	83	10 years	? 13 days	"	"	C.	Sac dissected up and ligatured. After removal of adherent omentum.
46	Single	F.	23	3 days	—	Ice, taxis	Epiplocele	C.	Irreducible.
47	Married	F.	76	20 years	19 hours	Sac not opened	Enterocoele	C.	
48	Market porter	M.	34	3 years	4 days	Sac incised	Enteroplocele	C.	Sac removed and borders of opening approximated. Omentum removed.
49	Married	F.	66	30 years	5 days	"	"	C.	Ditto.
50	Single	F.	40	19 months	"	"	Enterocoele	C.	Ditto.
51	Married	F.	44	11 years	8 days	"	Enteroplocele	C.	Ditto.
52	"	F.	77	15 years	4 days	"	"	C.	Ditto.
53	Laundress	F.	69	7 years	24 hours	"	Enterocoele	C.	Sac removed.
54	Widow	F.	70	20 years	"	"	Enteroplocele	C.	Sac removed. Omentum removed. She suffered from pleurisy during the after-treatment and cystitis.
55	Married	F.	29	2 years	"	"	Enterocoele	C.	Sac removed.
56	Widow	F.	65	? years	7 days	"	Enteroplocele	D.	Omentum ligatured and removed. Diarrhœa, exhaustion. Post-mortem, slight localised peritonitis.
57	Undertaker	M.	65	4 years	4 days	"	Enterocoele	D.	Sac ligatured and removed. Intestine congested and softened.

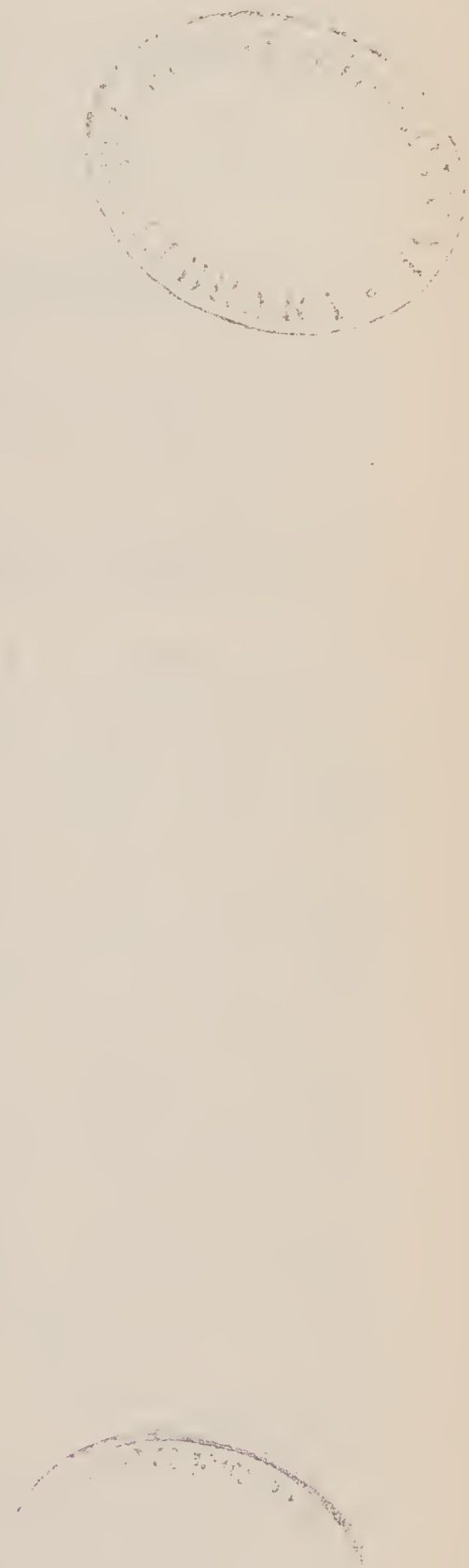
58	Married	F.	77	40 years	2 days	"	"	D.	Gangrene of gut. Artificial anus established. Lived four days.
59	Widow	F.	72	20 years	"	"	"	D.	Was admitted in a state of collapse, and only lived five and a half hours after admission. P.M.
60	"	F.	74	?	?	Sac opened	Entero-epiplocele	D.	Granular kidneys. Omentum ligatured and removed. Collapsed, condition similar to that of No. 58. No general peritonitis. Coats of intestine at point of strangulation congested.
61	Married	F.	60	2 years	2 days	Nil	?	D.	In a condition of collapse, living only three hours.

Umbilical Hernia.

62	"	F.	56	1 year	—	Rest	Entero-epiplocele	R.	Faecal fistula.
63	Waiter	M.	39	5 years	—	Truss	"	R.	Irreducible.
64	Married	F.	41	13 years	—	"	"	R.	Ditto.
65	"	F.	42	6 years	4 days	Opening of sac, resection of intestine	"	D.	See 'Lancet,' Sept. 3rd, 1885. Gut gangrenous. Resection performed. Miscarriage two days before death. Acute peritonitis.

Ventral Hernia.

66	"	F.	26	9 months	—	Belt	Entero-epiplocele	R.	In site of ovariectomy wound.
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SPECIAL TABLE II.—PYÆMIA.

(A.—There were no cases admitted.)

B.—CASES IN WHICH THE DISEASE AROSE IN HOSPITAL.

Males 5, females 2. R. 1, D. 6.

1. Male, æt. 25. Operation for left varicocele (antiseptically). Excision of veins performed 20th of December, 1884. Suppuration of wound. Rigor January 4th. Left knee affected January 7th. Ankle swollen January 10th; this was incised on the 11th. The knee was aspirated on the 12th, and 8 ounces of pus removed; and again next day, when 5 ounces were removed. On the 16th it was incised and drained. Gradually recovery in condition of limbs, but patient gave many signs of mental aberration, and was removed to Bethlem Hospital after 101 days' residence.

2. Female, æt. 7. Admitted with acute periostitis of left tibia of 3 days' duration. Incisions were made under antiseptic precautions. Pericarditis; albuminuria. Pain in right shoulder. No rigors. P.M.—Acute periostitis of tibia; pericarditis; abscess of lungs and kidneys. Lived 6 days.

3. Male, æt. 14. Admitted for necrosis of femur of 3 weeks' duration. Incisions were made. Two days later fulness in knee-joint, temp. 103° , delirium, axillary abscess, diarrhœa, general twitchings of the body. Lived 17 days. P.M.—Disease of right femur for half its length, no suppuration in joints, empyæma; pericarditis; numerous abscesses in kidneys; suppurative basal meningitis.

4. Male, æt. 30. Admitted with cellulitis of the neck and chest of (?) 3 weeks' duration. Large slough formed, some necrosis of the lower jaw, and hæmorrhage from a sinus in connection with it. Œdema of right leg. Rigor. Swelling of first right metacarpo-phalangeal joint. Swelling over joints of right hand. Rigor. Swelling of right arm. General convulsive movements; profuse sweatings. Coma. Lived 29 days. P.M.—Cellulitis of front of chest, general signs of septicæmia, but some of the joints apparently not examined.

5. Female, æt. 26. Admitted with compound dislocation of the astragalus. Portions of bones removed; suppuration in the tarsus; amputation refused; rigors; high and irregular temperatures; sloughing of leg; bedsores; swelling of elbow-joints. Lived 19 days. P.M.—Necrosis of exposed parts of os calcis and astragalus; pus in subcutaneous tissues of foot, outside left shoulder-joint.

A pint of blood-stained fluid in each pleura ; large and recent infarct in the spleen.

6. Male, æt. 11. Admitted with acute suppuration in the hip-joint, symptoms of which commenced about 3 days before. Delirium with temperature made it probable that pyæmia was already present. Joint excised. No improvement. Lived 9 hours after the operation and 2 days after admission. P.M.—Pericarditis, infarcts in wall of heart, in kidneys, in lungs. No apparent cause for the pyæmia.

7. Male, æt. 34. Admitted with retention of urine due to stricture. Stricture symptoms for 3 or 4 years ; absolute retention for about 24 hours. Attempts at passing instruments tried outside without success. After admission, an unsuccessful attempt was made to perform perinæal puncture, and the patient was relieved by tapping per rectum, the cannula being left *in situ*. Next day there was some hæmorrhage from the perinæal wound. The cannula slipped out 2 days later, a catheter being passed. A succession of rigors with a temperature of 107.6° , pain and swelling in right shoulder and left elbow, delirium. Lived 5 days. No P.M.

SPECIAL TABLE III.—*Erysipelas.*

No. of case.	Sex.	Age.	Disease for which admitted.	Ward in which it arose.	Duration of residence in hospital before attack developed.	Probable cause of the attack.	Part where eruption appeared.	Duration of time between action of probable cause and appearance of eruption.	Duration of attack.	Result.	Remarks.
1	F.	45	Scirrhus of breast	Alexandra	47 days	? Operation	Chest	? 45 days	15 days	C.	Severe attack.
2	F.	30	Enchondroma of parotid	Elizabeth	62 "	"	Face	10 "	12 "	D.	Severe attack; high temperatures, ending in coma. No P.M.
3	M.	18	Exostosis of femur	Albert	15 "	"	Thigh	3 "	5 "	C.	
4	M.	17	Sarcoma of groin	"	42 "	? Preceding case	Abdomen and thigh	9-12 "	9-10 "	C.	
5	M.	62	Perinæal fistula	"	11 "	Operation	Perinæum	3 "	12 "	C.	
6	M.	30	Perinæal abscess	Edward	22 "	? Incision	"	22 "	5 "	C.	
7	F.	13	Gonorrhœa	Magdalen	26 "	Vaccination	Arm	7 "	4-5 "	C.	
8	M.	20	Disease of elbow-joint	Leopold	10 "	Excision	Elbow	15 "	9 "	C.	
9	F.	29	"	Alexandra	33 "	Incision of sinuses	"	14 "	4 "	C.	
10	M.	17	Disease of hip	Albert	8 mos.	Excision	Hip	14 "	5 "	C.	Died at the end of 518 days after excision of hip and later amputation at same.
11	F.	13	Multiple necrosis	Alexandra	120 days	Operation	"	12 "	14 "	C.	
12	F.	21	Necrosis of jaw	Elizabeth	30 days	? "	Face	? 25 "	3 "	C.	
13	M.	21	Necrosis of femur	Edward	52 "	? "	Thigh	? 40 "	13 "	C.	

14	M.	17	Suppuration of bursa	Henry	2 "	Incision	Knee	2 "	4 "	C.
15	F.	52	Enlarged bursa	Alexandra	15 "	Removal	"	9 "	11 "	C.
16	M.	58	Ulcer of leg	Henry	96 "	?	Leg	?	4 "	C.
17	M.	39	"	Clayton	18 "	Probing of stump after amputation	Stump	2 "	19 "	C.
18	F.	60	Eczema of legs	Elizabeth	22 "	?	Leg	?	4 "	C.
19	F.	30	Burn of arm	Alexandra	3 "	Burn	Arm	3 "	10 "	C.
20	F.	39	Burn of face and neck	Elizabeth	13 "	"	Face	? 13 "	11 "	C.
21	M.	12	Scald of hand	Edward	3 "	Scald	"	3 "	7 "	C.
22	F.	37	Fracture of base of skull	Alexandra	16 "	Injury	Head and face	? 16 "	6 "	C.
23	M.	26	Compound fracture of vault	Leopold	14 "	? Exposure for change of dressing	Head	3 "	7 "	C.
24	F.	58	Intracapsular fracture of femur	Elizabeth	29 "	? Cold	Face	1 "	12 "	C.
25	M.	42	Fracture of radius; scalp wound	Albert	10 "	Head	? Dressing	4 "	3 "	D.
26	F.	34	Fracture of tibia and fibula, with wound of leg	Alexandra	27 "	Leg	?	?	9 "	D.
27	M.	38	Punctured wound of thigh	Edward	16 "	Thigh	?	?	5 "	C.
28	F.	52	Scalp wound	Alexandra	4 "	Scalp wound	Scalp	4 "	8 "	C.
29	M.	22	Wound of leg	Clayton	3 "	Wound	Leg	3 "	9 "	C.
30	M.	5	Wound of foot	"	11 "	? Exposure of wound	Foot	1-2 "	3 "	C.
31	M.	48	Cellulitis of arm	—	11 "	Incision	Arm	6 "	5 "	C.

Subject to erysipelas.

No P.M.

Miscarriage; peritonitis.

STATISTICAL REPORT

OF

THE OPHTHALMIC DEPARTMENT

FOR THE YEAR 1885.

BY G. D. JOHNSTON,
LATE OPHTHALMIC CLINICAL ASSISTANT.

DURING the year there were 3343 new out-patients (exclusive of renewed letters). 367 patients were admitted (including 75 readmissions), and 263 major operations were performed.

Table of In-patients.

Cataract, senile	37	Ophthalmia, gonorrhœal	1
„ traumatic	6	„ muco-purulent	4
„ lamellar	4	„ neonatorum	1
„ congenital	1	Conjunctivitis	3
„ secondary	1	Iritis, syphilitic	5
„ posterior polar	3	„ in tertiary syphilis	1
„ soft	1	„ chronic	3
„ membranous	1	„ recurrent	3
Membrane after extraction	8	„ rheumatic	3
Glaucoma, acute	3	„ heredito-gouty	1
„ subacute	2	Granular lids and pannus	23
„ chronic	8	Keratitis, heredito-syphilitic	14
„ secondary	2	„ herpetic	1
„ absolute	2	„ after smallpox	1
Wounds of eyeball	11	Sclero-keratitis	2
Concussion of eyeball	2	Kerato-iritis	1
Rupture of eyeball	1	Irido-cyclitis	1
Foreign body in eye	1	Nebulæ and leucomata	11
Sympathetic inflammation	2	Ulcers of cornea, chronic, relaps-	
„ irritation	1	ing, &c.	28
Lost eyes	7	Ulcers of cornea, hypopyon, sup-	
Ophthalmia, purulent	2	purating and serpiginous	15

Papillitis, double	4	Lacrimal abscess and mucocoele	3
„ single	1	Trichiasis	2
Retinitis, syphilitic	1	Ectropion	2
„ diabetic	1	Orbital cellulitis	1
Choroido-retinitis	3	Emphysema of orbit	1
Choroiditis disseminata	4	Necrosis of orbit	1
Myopia with choroiditis	2	Hæmorrhage into orbit	1
Progressive atrophy	2	Syphilitic periostitis at base of skull	1
Post-papillitic atrophy	1	Intra-ocular sarcoma	4
Tobacco amblyopia	1	Lupus of conjunctiva	1
Detachment of retina	6	Rodent ulcer	1
Astigmatism	1	Facial paralysis	1
Conical cornea	2	Congenital ptosis	1
Hyalitis	3	Hypertrophy of skin of upper lid	1
Divergent strabismus	6	Staphyloma	2
Convergent strabismus	2		
			291

The following is a list of the chief operations performed :

(The figures refer to the number of eyes.)

Removal of cataract	62	For ulcers of cornea	4
Extraction	42	After extraction of cata-	
Suction	6	ract	2
Curette extraction	9	For artificial pupil	28
Discission	3	Sclerotomy	1
Extraction of membra-		Operation for conical cornea	3
nous cataract	2	Peritomy	1
Extraction of dislocated lens	2	Tenotomy of internal rectus	21
Discission after extraction	25	Graefe's operation	8
Extraction of membrane with for-		Liebreich's „	8
ceps	5	Critchett's „	5
Iridotomy after cataract extraction	4	Tenotomy of external rectus	5
Förster's operation for ripening		Advancement of internal rectus	4
cataract	5	Entropion, Snellen's operation	5
Iridectomy	66	„ Arlt's „	1
For glaucoma, acute	3	Trichiasis, Van Millingen's opera-	
„ „ subacute	2	tion	1
„ „ chronic	9	Ectropion, V—Y operation	1
„ „ secondary	4	Ptosis, Pagenstecher's operation	1
„ „ absolute	2	Division of anterior synechiæ	1
Preliminary to cataract		Removal of contents of orbit	2
extraction	7	Excision of eyeball	46
For prolapse of iris	5		
			263

Analysis of Cataract Operations.

I.—Extraction of hard cataract—42.

The section was made upwards in every case except Nos. 8 and 10, in which it was made downwards.

Iridectomy was done at the time of the operation, except in Cases 2, 7, 15, 20, 25, 35, in which it had been done before; Cases 33 and 41, in which the lens was extracted without iridectomy.

In thirty-five cases the operation was done under cocain.

In five cases chloroform was administered, and in two ether.

Atropine was commenced on the third day in every case, and was used twice daily until about the fourteenth day; in cases where there was iritis more frequently.

In two cases, Nos. 35 and 37, the lens capsule was washed out with a saturated solution of boracic acid (sterilised) at about a temperature of 98° F., McKeown's syringe being used.

II.—Operations for removal of soft cataract—17.

In fifteen of this series the lens was extracted, in six by suction with Bowman's syringe, in nine by the curette. In twelve of these fifteen the lens was freely stirred up with a needle about forty-eight to seventy-two hours before extraction, the eye being kept fully under the action of atropine, and ice being applied for about forty-eight hours after the needling; in one immediate suction, and one immediate curette evacuation, were performed; the remaining one was traumatic, and was removed by suction ten days after the accident. In two of the remaining three simple discission was practised for shrunken congenital cataracts in a baby. The last case, No. 59 (making eighteen in all), was complicated and unfavorable.

Remarks by Mr. Nettleship.

The chief features of the year's operations were the extensive use of cocain and the occurrence of a disastrous series of suppurations, chiefly but not solely after extraction of cataract, no less than eight eyes being lost between the beginning of

May and the middle of October. These comprised extraction of cataract in adults four eyes; preliminary iridectomy (on second eye of one of the above patients) one; suction one; curette extraction one; iridectomy after extraction one. The total number of operations involving the anterior chamber during the same period was 103, of which thirty were removals of cataract.

We thus lost six out of thirty cataract extractions (20 per cent.) and two eyes after other operations. One of these two was the second eye of Mrs. Williams (Extraction Table I, Case 12), who had just lost the other eye after extraction; the other was iridotomy, after discission of cataract fifteen years previously, in a man of thirty-five (G. Price), who was suffering from lacrimal-duct disease, which had been much improved, but not entirely cured, by treatment before the operation was undertaken.

The case last mentioned may no doubt be rightly set down to infection of the wound by discharge from the lacrimal sac. Case 12 (Mrs. Williams) was in a very badly-nourished and restless peasant woman from South Wales, whose right lens was extracted with iridectomy under chloroform on May 8th; suppuration setting in about seventy-two hours later. On the 15th preliminary iridectomy was performed, under cocain discs, on the other eye, after careful consideration of all the circumstances; this eye was also rapidly lost in the same way. In one (Richard Sharp, aged ten; Table II, Case 51) the patient was extremely unmanageable and unhappy, constantly crying to go home, and disturbing the dressings.

In the remaining four no reason whatever could be plausibly assigned, after very careful thought and search, until it occurred to me that some of the preparations of cocain might be at the bottom of the mischief. The gelatine discs which I was using were, owing to the cocain employed for the manufacture, never quite dry; and I thought and still think that they very likely harboured septic germs. The solutions (2 per cent.) which were used instead of discs in some cases were, chiefly owing to an over-scrupulous consideration for the high price of the drug, often kept for some considerable time, and, as was shown by knowledge gained later, probably often contained organisms.

After the middle of October no discs were used;¹ the solutions (2 per cent.) were often freshly made, and for some months were mixed with various antiseptics. Since the early part of the present summer (1886) I have used a simple watery solution (2 per cent.) made freshly for each operation day, and up till the date of writing (middle of August) have had no further trouble.²

A comparison with previous years strengthens the belief that most of the eight losses of 1885 were in some way due to the use of cocain preparations. Thus, in 1880 I lost only one eye by suppuration after extraction of cataract out of forty-one operated upon; in 1881, 1 in 51; in 1882, 0 in 51, in 1883, 2 in 60 (1 partial suppuration only, but eye lost); in 1884, 1 in 68, and that one (No. 41, Cataract Table, Report for 1884) occurred (on October 21st) almost immediately after the introduction of cocain. From May 3rd, 1881, to May 13th, 1883, I had a continuous series of 103 removals of cataract without a single suppuration. A short communication on the same subject will be found in the 'Transactions of the Ophthalmological Society,' vol. vi. A table of the eight cases above referred to is appended.

¹ Discs, quite dry and made from perfectly pure cocain, have since been made, and can be obtained from Mr. Martindale.

² Since writing this, simple linear extraction has been performed several months after preliminary iridectomy had been done on the second eye of Grace C., æt. 10 (No. 53 on the Table), and I regret to say that the eye is suppurating. This eye was operated on under ether, and no cocain used.—August 24th, 1886. The extraction wound was cauterised by galvano-cautery. The process stopped short of panophthalmitis, and the eye will, I hope, eventually be of some use. Oct. 1st, 1886.

Cases of Suppurative Panophthalmitis after Operation (chiefly removal of cataract) occurring between May 8th and October 15th, 1885.

Name.	Sex.	Age.	Date of admission.	Date of operation.	Operation.	Date of commencement of suppuration.	Result.
G. W., Table, Case 12	F.	64	May 8th, 1885	May 8th May 15th	Extraction of right upwards with iridectomy (chloro- form) Preliminary iridectomy, left (cocain discs)	Some thick discharge on dressing on evening of 9th; muco-purulent discharge; iris dis- coloured on morning of 10th Discharge from conjunctiva commencing as in right on May 16th. Cornea opaque on 17th, 4.30 p.m.	Excised May 16th. Left excised May 25th.
R. T., Table, Case 50 G. P.	M.	10 35	June 22nd, 1885 June 23rd, 1885	June 23rd June 26th July 10th	Needling, right (cocain discs) Suction extraction, right (cocain solution) Iridotomy, right (cocain and pilocarpin solution)	Pain in right on afternoon of 27th Swelling of lids; right, slight discharge and pus in anterior chamber, morning of 28th Pain in right, evening of 13th; morning of 14th eye congested, aqueous turbid. Dates discomfort about eye from syringing of lacr. sac, right, on afternoon of 13th July 6th, slight redness and swelling of lower lid, with occasional throbbing pain	Excised Aug. 7th. Excised July 16th.
A. B.	F.	61	July 1st, 1885	July 3rd	Extraction of right upwards (cocain and pilocarpin so- lution)		Excised July 17th.
G. C.	F.	9	Aug. 6th, 1885	Aug. 11th Aug. 13th	Needling, left (cocain disc) Curette extraction, left (co- cain solution)	Aug. 16th, 12.30 p.m., pain; eye looks fishy; aqueous turbid; iris discoloured	Excised Aug. 28th.
E. B.	F.	57	Oct. 5th, 1885	Oct. 6th	Extraction of left upwards with iridectomy (cocain discs)	Oct. 7th, slight swelling of lids. Oct. 8th, some swelling of lids, chemosis, cornea fishy	Left hospital Oct. 27th; general haze of cornea; thick membrane in pupil. Excised Oct. 23rd.
W. H.	M.	36	Oct. 15th, 1885	Oct. 16th	Simple linear extraction, right (cocain discs)	Evening of 17th, pain; morning of 18th, pain all night; aqueous very dull; incision infiltrated	

TABLE I.—*Extractions of Hard Cataract*—42.

No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
1	J. H. Jan. 9th	M.	66	Chloro- form	Extraction of left upwards with iridectomy; section and iridectomy large; lens small, movable, and hard; no soft matter came out separately	Favorable	—	2 months after operation V. = $\frac{6}{18}$, 6 J. slowly.
2	J. H. March 17th	M.	66	Cocain discs	Extraction of right upwards; lens would not present; extracted with Pagenstecher's spoon; some fluid vitreous lost. (Preliminary iridectomy in the eye 3 months before)	Eye became soft and painful	—	Excised 2 weeks after operation.
3	T. T. Jan. 13th	M.	68	"	Extraction of right upwards with iridectomy; lens came out clean	Favorable; some membrane in pupil	Needed 2 months after operation	2 months after operation V. = $\frac{6}{12}$, and 1 J. well at 9".
4	E. C. Jan. 16th	M.	37	Cocain	Extraction of right upwards with iridectomy; ends of section rather too scleral; lens very dry and chippy; came out with difficulty, but quite clean	Pupil wide; very nearly clear	—	5 months after operation V. = $\frac{6}{24}$ and 1 J. at 9".
5	A. D. Jan. 30th	F.	69	Cocain discs	Extraction of right upwards with iridectomy; lens small and hard; pupil left black	Two threads of blood-stained membrane in pupil	Membrane needed 1 month after, and again 2 weeks after that	V. after second needling $\frac{6}{36}$ and 16 J.
6	H. H. Jan. 30th	F.	72	"	Extraction of left upwards with iridectomy; much cortical matter coaxed out after lens extruded	Some membrane in pupil	Membrane needed 2 months after operation	6 months after operation V. = $\frac{6}{24}$ and 1 J.

No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
7	J. F. Feb. 20th	F.	62	Cocain discs	Extraction of left upwards; good deal of cortical matter coaxed out after lens extruded	Slight iritis; a good deal of opaque matter in pupil	3 months after operation membrane needled twice	V. after second needling $\frac{6}{24}$, and some words of 1 J.
8	J. J. Feb. 28th	F.	60	"	Extraction of right downwards with iridectomy; much soft cortex coaxed out	Pupil not dilated; coloboma blocked with opaque matter	9 weeks after operation membrane removed with hook	2 weeks after secondary operation V. = $\frac{6}{24}$, and 1 J. at 9".
9	J. H. March 13th	M.	64	Cocain	Extraction of left upwards with iridectomy; semi-fluid vitreous presented at wound; some fluid cortex left behind outer limit of iris	Slight iritis after operation; eye remained irritable for several weeks	—	6 weeks after operation V. = $\frac{6}{24}$, and 1 J. at 8".
10	A. J. March 27th	M.	66	Chloroform	Extraction of right downwards. Section as in old flap operation, but with Graefe's knife. Some soft lens matter came away as soon as iridectomy was done. It was doubtful if nucleus came away. The difficulty in making lens presented was accounted for by presence of an old iridectomy wound upwards, which prevented proper counter-pressure	Eye remained irritable for some time with good deal of lymph in coloboma, the operation wound not having completely healed 5 weeks after, at which time eye was tender, cornea hazy, T. -. No p. l.	—	15 months after operation eye shrunken and cornea opaque.
11	R. K. March 27th	F.	67	Cocain discs	Extraction of right upwards with iridectomy. Lens came out clear	Favorable. Some thin membrane in pupil 5 weeks after	Membrane needled June 5th; some iritis after needling	15 months after operation $\frac{6}{18}$ partly, and 16 J. at 9".
12	G. W. May 8th	F.	64	Chloroform	Extraction of right upwards with iridectomy. Incision too short and corneal; it had to be enlarged; much lens matter left	A great deal of retching immediately after operation. Sick 3 times next day. Definite symptoms of panophthalmitis on May 11th	Eye excised May 16th	—

13	M. P. May 8th	F. 51	Cocain	Extraction of left upwards with iridectomy. Nucleus small and hard; much soft cortex not all coaxed out	Favorable. To come again for needling	—	14 months after operation opacities in vitreous; detached retina. Fingers at 9" and 20 J. letters.
14	D. W. May 8th	M. 69	Chloroform	Extraction of left upwards with iridectomy. Lens, overripe and dry, presented badly, and was helped out with Pagenstecher's spoon. A flake of lens matter left in lower part of pupil	Favorable; some atropine; delirium	June 2nd under cocaine. Extraction of capsule and remains of lens matter with cannula forceps; a good deal of semi-fluid vitreous oozed away	5 weeks after operation chooses + 10 D. for distance, with + 14 D. counts fingers at 12".
15	E. M. May 5th	F. 54	Cocain discs	Extraction of right upwards; much soft matter; some came away of itself; some was expressed by stroking. Eye prominent, but vitreous did not present	Slight iritis; pupil fairly wide	—	12 days after operation $\frac{6}{24}$ and 1 J. at 9" fairly; + 1.5 D. astigmatism.
16	M. A. G. May 22nd	F. 67	Cocain discs	Extraction of left upwards with iridectomy. Lens hard; came out clean	Some opaque matter in pupil	—	14 months after operation $\frac{6}{36}$ partly, and 14 J.
17	M. M. May 22nd	M. 65	"	Extraction of right upwards with iridectomy. Pupil left black	Favorable. Would not keep on dressing or goggles. Discharged	—	Thin membrane in centre of pupil; cornea too nebulous to be worth needling. 14 months after operation $\frac{6}{36}$ and 16 J.
18	E. B. June 5th	F. 66	"	Extraction of left upwards with iridectomy. Lens hard and yellow	Favorable; some opacity in pupil	Sept. 15th needed	14 weeks after operation $\frac{6}{12}$ and 1 J.
19	F. S. June 5th	M. 40	"	Extraction of left upwards with iridectomy; most of lens quite soft, but there was a small hard nucleus	Favorable; very thin capsular membrane	—	13 months after operation $\frac{6}{9}$ partly, and 1 J. at 9".

No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
20	J. D. June 19th	F.	73	Ether	Extraction of right upwards; cornea very soft and easily indented with finger-nail, and after removal of cataract lay in flabby folds	Some atropine; delirium; otherwise favorable. Discharged unmanageable	—	Not known.
21	A. V. July 7th	F.	50	Cocain, pilocarpin	Extraction of right upwards with iridectomy. Lens did not come away easily; helped out with Pagenstecher's spoon, which was passed in a short distance. Lens dry and chippy; some coaxed out, but some left behind	July 13th.—Some iritis and much opaque matter in pupil. Aug. 20th.—Pupil irregular from adhesions, and filled with opaque matter	Oct. 23rd.—Extraction of membrane with blunt hook. (Iris membrane drawn down and cut off)	Dec. 18th.— $\frac{6}{18}$ and 6 J. fairly.
22	A. B. July 3rd	F.	61	Cocain	Extraction of right upwards with iridectomy. Lens hard and rather small; edge chipped	Slight iritis 4 days after operation; wound; aqueous muco-purulent; some pain; 13 days after extreme chemosis; cornea clear; no a. c.; wound opaque with lymph, which quite fills pupil	July 17th.—Excised	Lost.
23	S. T. July 31st.	F.	75	Cocain discs	Extraction of right upwards with iridectomy with Pagenstecher's spoon. Spoon passed in for about one third or half diameter of lens. Lens levered forward, and some uveal pigment brought away; no loss of vitreous	Favorable	—	Aug. 11th.— $\frac{6}{36}$ and 6 J.
24	J. W. Aug. 7th	M.	—	Cocain	Extraction of left upwards with iridectomy. Lens small, hard, amber coloured; came out clean	Favorable	—	Dec. 15th, 1885, 4 months after operation, $\frac{6}{36}$ and 6 J. at 9''.

25	E. S. Aug. 14th	F. 72	"	Extraction of right upwards in capsule with Pagenstecher's spoon. Some loss of vitreous, but wound left in good apposition	Favorable; some membrane left in pupil	—	after operation, $\frac{6}{18}$. Sept. 17th.— $\frac{6}{18}$ and 12 J.
26	E. W. Aug. 25th	F. 65	"	Extraction of right upwards with iridectomy; section in cornea at centre. Lens hard; moved under cystotome; came out clean. Mr. Lawford	Some membrane in lower part of pupil	Nov. 20th.— Membrane needled July 16th, 1886.— Membrane pulled away with cannula forceps	July 22nd, 1886, 11 months after operation, $\frac{6}{18}$ and 1 J. at 6".
27	M. D. Aug. 29th	F. 53	"	Extraction of left upwards with iridectomy. Lens soft and sticky	Slight iritis; several adhesions	—	Nov. 15th, 1885, 2 months after extraction, dense membrane. Does not see board at 3 metres, 19 J. at 9".
28	{ C. S. Sept. 12th	F. 63	"	Extraction of right upwards with iridectomy; very free bleeding, probably from inflamed conjunctiva. Lens small	Some iritis a week after operation	—	Nov. 15th, 1885, 1 month after extraction, same as R.
29		F. 63	"	Extraction of left upwards with iridectomy; good deal of bleeding into a. c. Lens hard and overripe	Favorable	—	Dec. 9th.— $\frac{6}{18}$ and 1 J., partly, at 7".
30	W. F. Sept. 25th	M. 68	"	Extraction of right upwards with iridectomy; much soft matter; very little could be coaxed out. Mr. Lawford	Oct. 8th.—Slight swelling of lids, some chemosis, eye "fishy looking," leeches. Upper lid blistered with nitrate of silver. Eye improved a good deal.	—	27th July, 1886, 9 months after operation, p. l., cornea slightly hazy.
31	E. B. Oct. 6th	F. 57	"	Extraction of left upwards with iridectomy; good deal of lens matter removed, but some left	Oct. 27th.—Still general haze of cornea, thick membrane in pupil	—	

No.	Name and date.	Sex.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
32	G. G. Oct. 9th	M.	58 Cocain	Extraction of right upwards with iridectomy; section rather scleral; free bleeding; some blood left in a. c.	Favorable	—	Oct. 19th.— $\frac{6}{86}$, 18 J. letters, 1.5 D. astigmatism. Feb. 24th, 1886.— $\frac{6}{36}$, 10 J. words.
33	W. H. Oct. 16th	M.	36 "	Simple linear extraction of right; nearly all lens got away with a good deal of coaxing. Pupil left quite round; no prolapse of iris	Panophthalmitis set in 36 hours after operation	Eye excised, Oct. 23rd	Lost.
34	A. T. Nov. 6th	F.	64 Cocain and pilocarpin	Extraction of right upwards with iridectomy; lens hard; small amount of cortical matter left	Hyphæma, which had not entirely cleared up when she went home, Dec. 3rd. A single adhesion with some pigment in the pupil; will require needling	—	Aug. 10th, 1886, 10 months after operation, $\frac{6}{6}$ and 1 J.
35	M. S. Nov. 13th	F.	62 Chloroform	Extraction of right upwards. A. C. washed out with McKeown's syringe, a sterilised solution of boracic acid, gr. xv to 3j being used	Slight iritis; eye remained congested for several weeks. Dec. 31st.—Pupil is getting drawn up	—	21st May, 1886, 6 months after operation, $\frac{6}{18}$, and 1 J.
36	R. C. Nov. 25th	M.	50 Cocain and pilocarpin	Extraction of right upwards with iridectomy; iris cut with knife in making section, a portion removed in more than one piece. Large lens came away whole, no soft matter removed afterwards. Mr. Lawford	Favorable	—	Dec. 7th.— $\frac{6}{18}$, and 6 J. fairly.

37	M. E.	F. 55	"	Extraction of lens upwards with iridectomy; a. c. washed out with McKeown's syringe with sterilised boracic acid solution, gr. xx, 3j	Favorable		oculars not known.
38	J. W. Nov. 20th	F. 65	"	Extraction of right upwards with iridectomy	Quiet iritis; pupil irregular; will require a needle	—	May 4th, 1886, 6 months after operation, $\frac{6}{12}$, partly, and 1 J.
39	H. B. Dec. 8th	M. 41	"	Extraction of right upwards with iridectomy. Whole lens moved under cystotome, and then escaped while re-inserting speculum. A small lens, some clearish cortex, no soft matter removed afterwards. Mr. Lawford	Favorable.	—	27th Jan., 1886, 1 month after operation.—Thin membrane in pupil might be needed if eye had to be used. $\frac{6}{18}$, partly, and 16 J. at 9".
40	W. C. Jan. 23rd	M. 61	"	Extraction of right upwards with iridectomy; lens hard and very brown, rather large, came out clean	Favorable	—	Feb. 15th.— $\frac{6}{24}$, and 2 J.
41	J. A. Feb. 13th	M. 44	Cocain discs	Extraction of right without iridectomy, after section upwards with Graefe's knife. Vitreous presented largely in the wound but none escaped. Lens was then extracted in its capsule with Pagenstecher's spoon	Outer limit of iris healed into outer lid of wound. Pupil drawn towards scar	May 15th.—Simple iridotomy tried with Knapp's needle knife, but no gap could be cut. Bowman's canaliculus knife then passed in and iris cut well, a long vertical cut made in deep layer of cornea from within, leaving a hazy track	May 25th.— $\frac{6}{36}$, and words at 12 J. Astig. + 6 D.

No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
42	W. B. June 9th	M.	53	Ether	Extraction of left upwards with iridectomy; lens yellow, nucleus hard; some cortex left behind. This was a complicated case of extraction after operations for conical cornea; the cataract appeared after an iridectomy, which was necessitated by anterior synechia following excision of the apex of the cone; it was probably traumatic. The other highly myopic eye had become useless from detachment of retina before the left was operated upon	Favorable	—	27th July, 1886, 13 months after operation, still has good p. l. T. n. Cornea hazy, not benefited by operation.

TABLE II.—Operations for Removal of Soft Cataract—17.

43	B. F. Jan. 6th	F.	21	Cocain discs	Suction of right, nearly all the lens matter came away	Favorable	—	Jan. 15th.— $\frac{6}{24}$ and 14 J. slowly.
44	M. M. Jan. 23rd	M.	11	"	Suction of left, needled 3 days before, a little soft matter left	Favorable	—	Result good.
45	F. S. Feb. 6th	M.	—	"	Curette extraction of left; good deal of lens matter left	Favorable	—	Result good.
46	E. A. Feb. 20th	F.	7	"	Suction of right; lens wounded with fork 10 days before	Favorable	—	Result good.
47	F. S. March 17th	F.	9	Cocain	Suction of left 4 days after needling; lamellar cataract	Favorable	Sept. 15th.—Needled Sept. 18th. — Mem- brane removed with cannula forceps	Oct. 1st.— $\frac{6}{12}$ and 1 J

48	A. D. March 20th	F. 15	"	Suction of left 3 days after needling; A few days after operation some serous chemosis; cornea steamy; no tenderness, iritis, or + T.	July 6th. — Membranc removed with cannula and forceps	Aug. 6th, 1886, 17 months after extraction, $\frac{6}{12}$ and 1 J.
49	A. S. May 29th	F. 32	Cocain discs	Curette extraction of right 3 days after needling, not more than half the lens was extruded and this with difficulty	June 9th. — Curette extraction of remainder of lens matter	Can see letters on board and 16 J.
50	A. S. Nov. 25th	F. 32	Ether	Curette extraction of left 3 days after needling. Two thirds of lens let out	—	Result not known.
51	R. T. June 26th	M. 10	Cocain	Suction of right 3 days after needling; lamellar cataract	Aug. 7th. — Eye excised, as very dangerous, and not likely to be useful	Lost.
52	J. R. July 7th	M. 7 m.	Chloroform	Left needled freely; it was found to be a shrunken lens and not lamellar cataract	Oct. 16th. — Needled	} Result not known.
53	J. R. July 10th	M. 7 m.	"	Right needled	Oct. 16th. — Needled	
54	G. C. Aug. 13th	F. 9	Cocain	Curette extraction of left 2 days after needling; nearly the whole of lens removed; lamellar cataract	Aug. 15th. — Patient drowsy; vomited twice Aug. 16th. — Pain, aqueous turbid, iris discoloured Aug. 17th. — Large hydropyon; a. c. full of lymph; cornea clear; no chemosis	Aug. 17th. — Incision made at corneal margin down; lymph in a. c. extracted with iris forceps; a. c. washed out with corrosive sublimate solution, 1-10,000 Aug. 28th. — Eye excised

No.	Name and date.	Sex.	Age.	Anæsthetic.	Operation.	Progress of case.	Secondary operation.	Result.
55	C. E. C. Aug. 17th	M.	22	Cocain	Curette extraction of left 3 days after needling; good deal of lens matter left	Some atropine intoxication, otherwise favorable	Nov. 17th.—Needled	Dec. 28th.— $\frac{6}{36}$ and 6 J. April 8th, 1886.— $\frac{6}{18}$ and 1 J. at 9".
56	C. E. C. Sept. 4th	M.	22	"	Curette extraction of right 3 days after needling; good deal of lens matter left; lamellar cataract	Favorable	Nov. 27th.—Needled	$\frac{6}{18}$ and 1 J. at 9".
57	H. L. Oct. 9th	F.	7	Ether	Curette extraction of left 3 days after needling; most of lens removed	Favorable; some atropine delirium	—	Nov. 11th, 1885, 2 months after operation, $\frac{6}{60}$.
58	H. L. Nov. 24th	F.	7	—	Partial curette extraction of right 4 days after needling. Small bead of vitreous escaped; Taylor's knife used, point blunt, not much lens removed, eye seemed soft, lens presented badly; lamellar cataract	Favorable; good deal of membrane in pupil	—	Jan. 27th, 1886, 2 months after operation, $\frac{6}{30}$ partly.
59	F. H. Oct. 27th	M.	43	Cocain	Curette extraction of right 4 days after needling. Two thirds of lens matter removed	Some difficulty in getting pupil to dilate; otherwise favorable	—	Result good.
60	E. H. Nov. 6th	M.	30	"	Right needled; lens freely stirred	Favorable; very slight reaction	Nov. 17th.—Needle introduced and lens stirred; then incision with Taylor's knife, and small quantity of lens matter let out; forceps introduced, and attempt made to draw out some capsule, but little or none withdrawn	June 13th, 1886.—Sees board, not $\frac{6}{60}$.

St. Thomas's Hospital MEDICAL SCHOOL.

CALENDAR AND PROSPECTUS

FOR THE
YEAR COMMENCING OCTOBER 1st, 1886.



1886 & 1887.

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Full information on all matters connected with the Medical School, Prizes, &c., will be obtained on application to the Medical Secretary, Mr. G. RENDLE, at the Hospital, Albert Embankment, S.E.

A Register of Lodgings suitable for Students has been recently revised, and is kept in the Secretary's Office. Information as to terms, accommodation, &c., can be obtained on application. This Register has been especially prepared with a view to the convenience of gentlemen newly arriving in town without definite arrangements having been made for their accommodation in lodgings or otherwise.

Several Medical Practitioners and Private Families residing in the neighbourhood receive Students for residence and supervision.

There is a Restaurant in the Medical School where Students can take their meals at moderate charges.

St. Thomas's Hospital

MEDICAL SCHOOL.

The WINTER SESSION 1886 – 87 will commence on FRIDAY, OCTOBER 1st, and terminate on MARCH 31st.

The SUMMER SESSION will begin on MAY 1st, and terminate on JULY 31st.

An Introductory Address will be given in one of the Theatres of the Hospital by

J. S. BRISTOWE, M.D. Lond., F.R.S., LL.D.,
on FRIDAY, October 1st, at 3 P.M., after which the various Departments of the Hospital and School will be thrown open in working order for the inspection of Visitors.

Refreshments will be provided in the Library.

The Annual Dinner, in which all former and present Students are invited to join, will take place the same evening in the Governors' Hall, at 6 for 6.30.

The Annual Distribution of Prizes will be made during the Summer Session.

THE first hospital of St. Thomas, within the precincts of the Priory of St. Mary Overie, being destroyed by fire in the year 1207, the prior and convent erected in the same year near the site of their house a temporary hospital. This building was in the emergency used for religious purposes; mass was said there until the priory was rebuilt. In 1228 Peter de Rupibus, Bishop of Winchester, built the Hospital of St. Mary or St. Thomas, Overie, on the opposite or eastern side of the highway, on land provided by Amicius, Archdeacon of Surrey, and dedicated it to St. Thomas the Martyr.

The following is a translation of the “charter” of 1228 :—

“The Lord Peter's charter of indulgence for twenty days granted by him for this hospital.

“Peter, by the grace of God Bishop of Winchester, to

all the faithful in Christ in the diocese of Winchester, greeting. In Him who is the salvation of the faithful. As saith the Apostle, bodily discipline which consists in fasts, vigils, and other mortifications of the flesh, profiteth little, while piety availeth for all things, having the promise of the life which now is, and of that which is to come.

“Our Lord Jesus Christ among the works of piety enumerates, commends, and teaches us to fulfil six, as though more praiseworthy and more meritorious than the rest, saying, ‘I was an hungred, and ye gave Me to eat; I was thirsty, and ye gave Me to drink; I was a stranger, and ye took Me in; I was naked, and ye clothed Me; I was sick, and ye visited Me; in prison, and ye came to Me. To them that perform these works of piety He shall grant His blessing and the glory of His heavenly kingdom, saying, ‘Come, ye blessed of My Father, receive the kingdom which has been prepared for you from the beginning of the world.’ But to them that neglect and do not perform works of compassion He threatens His curse and the penalty of eternal fire, saying, ‘Go, ye cursed, into eternal fire, which has been prepared for the devil and his angels.’ It is therefore to be borne in mind, my dearest sons, and more deeply laid to heart, how needful and how conducive to the salvation of our souls it is to exercise more readily those works of piety whereby blessing is promised to us, and the felicity of eternal life is gained.

“Behold at Southwark an ancient hospital, built of old to entertain the poor, has been entirely reduced to cinders and ashes by a lamentable fire. Moreover, the place wherein the old hospital had been founded was less suitable, less appropriate for entertainment and habitation, both by reason of the straitness of the place, and by reason of the lack of water and of many other conveniences: according to the advice of us, and of wise men, it is transferred and transplanted to another more commodious site, where the air is more pure and calm, and the supply of waters more plentiful. But whereas this building of the new hospital calls for many and manifold outlays, and cannot be crowned

with its due consummation without the aid of the faithful, we request, advise, and earnestly exhort you all, and with a view to the remission of your sins enjoin you, according to your abilities, from the goods bestowed on you by God, to stretch forth the hand of pity to the building of this new hospital, and out of your feelings of charity to receive the messengers of the same hospital coming to you for the needs of the poor to be therein entertained, that for these and other works of piety you shall do, you may, after the course of this life, reap the reward of eternal felicity from Him who is the Recompenser of all good deeds, and the loving and compassionate God. Now we, by the mercy of God, and trusting in the merits of the glorious Virgin Mary, and the Apostles Peter and Paul, and St. Thomas the Martyr, and St. Swithin, to all the believers in Christ, who shall look with the eye of piety on the gifts of their alms—that is to say, having confessed, contrite in heart and truly penitent, we remit to such twenty days of the penance enjoined on them, and grant it to them to share in the prayers and benefactions made in the church of Winchester, and other churches erected by the grace of the Lord in the diocese of Winchester. Ever in the Lord; Farewell.”

The Bishop of Winchester or the Archbishop seems to have granted, in 1277, to the Brethren power to elect their own Master; in a visitation, 1323, they are ordered to follow the rule of St. Augustine—the rule of the parent house—in obedience, chastity, renunciation of individual property, and the Master to eat with the Brethren.

In 1417 the Master and Brethren formed a Court of themselves, and exercised authority within the precincts of the Hospital over persons regular or secular, and in cases civil or even criminal.

The Hospital, built in 1228, had by 1507 become dilapidated and insufficient; great efforts were then made to rebuild and enlarge it.

In the Duchy of Lancaster records there is “the Rentall of Thomas Becketts hospitall in Southwarke, of all the lands and tenements belonging to the hospitall.” It

contains the names of the tenants and the rents paid ; it is without date, but from internal evidence must be early in the sixteenth century.

Within the precincts of the hospital was the renowned printing press of James Nycolson, who, in 1527, signed the contract for the painted windows of King's College, Cambridge, as "James Nycolson, of St. Thomas's Spytell in Southwark." The most remarkable issue from this press was the first English Bible printed in England, inscribed thus—"Imprynted in Southwarke in St. Thomas Hospitale by James Nycolson. Dedicated by M. Coverdale to the King 1537."

About this time there were a Master, Brethren, and three Lay Sisters ; forty beds were made up for poor, infirm, and impotent people, who were supplied with victuals and firing.

In the year 1535, Henry VIII. was excommunicated by Pope Paul III., and, declaring himself head of the church, proceeded to dissolve the Catholic houses, whose large revenues went to the Crown. There seem to have been 645 monasteries and abbeys thus treated, twenty-eight of which had abbots with seats in Parliament, ninety colleges and free chapels, and 110 hospitals of various descriptions. It is certainly in favour of the sweeping change that so able and honest a man as Sir Richard Gresham, the Lord Mayor of London, should have put his hand to the following petition to the King :

"Most redowted, puyfant, and noble Prince * * * *—nere and within the cytie of London be iij hospitalls or spytells commonly called Seynt Georges Spytell, Seynt Barthilmews Spytell, and Seynt Thomas Spytell, and the new Abbey of Tower Hill, founded of good devotion by auncient fathers, and endowed with great possessions and rents only for the reliefe, comferte, and helping of the poore and impotent people lying in every street, offending every clene persone passing by the way with theyre fylthy and nasty savors. Wherefore may it please your merciful goodness, enclyned to pytie and compassion, for the relieffe of Xts very images, created to his own similitude, to order by your high authoritie, as supreme head of this Church of England, or otherwise by your sage discretion, that your mayer of your cytie of London,

and his brethren the aldermen for the time being, shall and may from henceforth have the order, disposition, rule and governance both of all the lands, tenements, and revenues apperteynyng and belongyn to the said Hospitals, governors of them, and of the ministers which be or shall be withyn any of them, and then your grace shall facillie perceyve that where now a small number of Chanons, Priests, and Monkes be founde for theyr own profitt only, and not for the common utilitie of the realme, a great number of poore, needy, syke and indugent persones shall be refreshed, maynteyned, and comforted; and also healed and cured of their infermities frankly and freely by physicions, surgeons and potycaries, which shall have stipende and salarie only for that purpose; so that all impotent persones not able to labour shall be releved, and all sturdy beggars not willing to labour shall be punished."

St. Thomas's Hospital being claimed by the King as Church property, was surrendered to him by Thomas Thirleby, the then master, on the 15th July, 1538. It was called St. Thomas à Becket's Spittil. Its yearly revenue was estimated at £266 17s. 6*d.*, and an annual pension of 5s. 8*d.* was payable by the master, and another of 2s. 1*d.* by the curate, to the Archdeacon of Surrey. Soon after the seizure, we find that the Citizens of London purchased of the Crown some of its landed estates, producing about £160 yearly. The want of the hospital thus destroyed was felt immediately. Wounded soldiers from the army in France, and the sick poor in general were without provision or help, and Henry proposed granting to the City the Mansion house of St. Bartholomew's, the dissolved house of Grey Friars adjoining, and the unoccupied fabric of St. Thomas's Hospital. The latter was intended by Henry to receive the name of the Hospital of the Holy Trinity, and to be allotted exclusively to lame, wounded, and diseased soldiers. The monastery of Grey Friars was to be for the education and maintenance of fatherless children and those of poor parents. The intentions of Henry were overtaken by death, but not before he had conferred upon the Citizens of London the Hospital of St Bartholomew's and also that of Bethlem for lunatics.

It is from the death of Henry that the connection of St. Thomas's Hospital with the city of London appears to begin. To meet the needs of the sick and destitute who had before depended on the charity of the religious houses, a Committee or Board of Inquiry was instituted by the Citizens, with the sanction of King Edward. About 2,100 souls were reported as fit recipients of relief, as fatherless children and invalids, or as "Idle rogues of both sexes who were levying contributions on public sympathy by feigned tales of sorrow." It was proposed to establish receptacles for each class in the unoccupied monastic buildings, and a pecuniary contribution was set on foot to complete the work. They bought the dissolved house of the Franciscans or Grey Friars near St. Bartholomew's Hospital, and also by charter from the King received a grant as follows: "That the said mayor, commonalty, and citizens, and their successors, may have and enjoy all the franchises, immunities, and privileges whatever, which any Archbishop of Canterbury, and which the said Charles late Duke of Suffolk, or any master, brethren, or sisters of the late Hospital of St. Thomas in Southwark aforesaid; or any Abbot of the said monastery of St. Saviour, Saint Mary Bermondsey, next Southwark aforesaid, or any prior and convent of the priory of St. Mary Overie, ever had or enjoyed, or which we hold or enjoy, or our most dear father Henry the VIIIth, late King of England, or had enjoyed, or ought to have, hold, and enjoy the same: and that none of our heirs or successors may intermeddle with this our grant."

The Greyfriars became Christ's Hospital, and the Southwark site the Hospital of the Holy Trinity or St. Thomas's. The Lord Mayor and certain citizens then met on the 6th of October, 1552, and constituted themselves by royal permission governors of the hospitals, and almoners of the money collected. The Hospital of the Holy Trinity they named, in compliment to Edward, the "King's Hospital," and ordained it to receive 260 "wounded soldiers, blind, maimed, sick, and helpless objects."

They also directed that 380 children should be received into Christ's Hospital.

To complete the scheme, the old palace of Bridewell, in Blackfriars, where the Emperor Charles V. had lodged in 1522, when on a visit to Henry VIII., and where subsequently Wolsey had lived, was granted to the City by Edward as a house of correction for dissolute persons and idle apprentices, and for the temporary maintenance of distressed vagrants.

Lastly, the lands lately belonging to the Palace of the Savoy were conferred jointly on the three foundations; and a month only before the end of Edward's short reign, he incorporated by a second charter bearing date the 6th of June, 1553, the Lord Mayor and commonalty of the City of London in succession as perpetual governors of Saint Bartholomew's, Christ's, Bridewell, and the king's Hospital (which last received the name of ST. THOMAS THE APOSTLE), and secured to them the possession of all the estates and revenues appertaining to them by previous deeds of gift. So were the royal hospitals founded.

In 1557 the laws were framed and printed under the name of "The Order of the Hospitalls of K. Henry the VIII. and K. Edward the VI., viz. St. Bartholomew's, Christ's, Bridewell, St. Thomas's. By the Maior, Cominaltie, and Citizens of London," &c.

Successive bequests and donations continued to augment the property of the charities, but during the reigns of Elizabeth, James I., Charles I., and the Protectorate, there appear few facts to note. In the abstract of the charter of confirmation granted to the City in 1663 by Charles II. on his restoration, we find the charter of Edward acknowledged and confirmed. The Great Fire of London in 1666 injured St. Thomas's in its revenues only; and a fire in Southwark anno 1676, ceased, "as if by divine interposition," at the Hospital, probably a strong and isolated block of building. Shortly after this, however, it was found necessary to rebuild the fabric, and in 1693 subscriptions were opened for this purpose. A long list of benefactions in this and the succeeding year, amounting in all to £37,769 3s., is given by Golding, who especially singles out Sir Robert Clayton for eulogium. The statue then erected to him, and still extant,

was originally dated 1701, but this was altered on his death to 1714. He was the founder of the old square in which it stood, replacing what Golding terms "a low swampy structure of the monastic order." In 1707, Mr. Guy, founder of the neighbouring hospital, erected three wards at his own charge. In 1717, the back block of buildings adjoining Guy's Hospital was added. With the exception of the two large blocks forming the Borough frontage, the north wing erected in 1833, and the south wing in 1839, the fabric seems to have remained unchanged until its purchase by the railway. In the centre of the front quadrangle stood the brass statue of King Edward, by Scheemakers, erected first in 1737, in pursuance of the will of Charles Joye, some time treasurer of the Hospital. It now stands in the grounds of the New Hospital.

It is a matter of more difficulty to trace the early history of the medical school in connection with the hospital. For the facts which follow we are indebted to the late R. G. Whitfield, Esq., who, from the long period during which his family had been associated with this foundation, was perhaps more qualified to speak than any other person.

The earliest mention in the hospital books of an apprentice is on December 31st, 1561. It is not until 1702 that a law is met with precluding pupils or surgeons from dissecting the dead body without permission from the treasurer.

In 1703 the grand committee resolved that no surgeon should have more than three "Cubbs," a term altered in 1758 to that of "Dressers." Besides these there were also apprentices to the surgeons of the hospital, and ordinary pupils. The first mention of lectures occurs soon after the appointment of Wm. Cheselden, in 1718. These he at first gave at his own house, but afterwards by permission in the hospital. They were on anatomy and surgery. In 1723 a regular registry was ordered to be kept by the apothecary, of pupils entering to surgical practice. In 1725, Guy's Hospital was opened for the reception of patients. In 1751 the assistant-physician was allowed to take two pupils for his own benefit. In 1768, an additional surgeon, Mr. Joseph Else, was elected to read lectures to the pupils.

The students of Guy's Hospital had by courtesy been allowed to attend the operations, and a similar favour admitted the St. Thomas's men to those at Guy's. But on the 8th November, 1768, it was formally resolved that the pupils of each hospital have the liberty of attending not only the operations, but surgical practice, and the money to be divided between the six surgeons and two apothecaries. Hence the appellation of the "United Hospital"; an amalgamation never extended beyond the surgical practice.

To Mr. Else is due the foundation of a regular anatomical school. Mr. Cline, who in 1781 was appointed to read lectures conjointly with Mr. Else, was mainly instrumental in bringing it to its greatest celebrity. At Mr. Else's death, Mr. Cline purchased the collection of preparations made by him and Mr. Girle, a former surgeon, which are now in the hospital museum, and became sole lecturer on anatomy. In 1788 he also became surgeon to the hospital. Mr., afterwards Sir Astley, Cooper was apprenticed to Mr. Cline in 1784, and before his election, as one of the surgeons to Guy's Hospital in 1800, was joint lecturer with his teacher on anatomy and surgery. They both added materially to the pathological museum.

In 1812 Mr. Henry Cline was elected surgeon to St. Thomas's Hospital on his father's resignation, and carried on the anatomical lectures conjointly with Astley Cooper. In 1813 a new anatomical theatre and museum were built, the hospital giving £3000 for the purpose, and the two lecturers £1000 each. In 1815 Mr. Benj. Travers, an apprentice of Astley Cooper's at Guy's, was elected surgeon, according to the established rule which gave the vacancy to the senior apprentice of either institution. Mr. Travers joined in the lectures, devoting his attention specially to ophthalmic surgery. In 1820 Mr. Joseph Henry Green was elected surgeon on the death of his cousin Mr. Hy. Cline, having been apprenticed to his uncle Mr. Cline in the year 1809. From 1820 to 1825 he lectured with Astley Cooper. At this period all the branches of medical study,—viz., medicine, chemistry, materia medica, midwifery, botany, and physiology

—were lectured on at Guy's Hospital, and no physician of St. Thomas's was allowed to share them.

In 1824 Sir A. Cooper resigned the surgical chair, and Mr. C. Aston Key, his apprentice and nephew by marriage, joined Mr. Green in the office. Mr. Frederick Tyrrell, standing in exactly the same relation to Cooper, received permission to lecture on diseases of the eye. In the following year Cooper showed signs of cerebral disturbance, and the family desired that his nephew, Mr. Bransby Cooper, should be his successor. But the claims of Mr. John Flint South were considered superior, and he was appointed. From this cause the "United Hospitals" were severed, and a complete school set up in both. The majority of the students clung to Guy's, where the prestige of the great Sir Astley was still strong; and St. Thomas's school began to sink. The establishment of the Aldersgate Street private school under Tyrrell and Lawrence materially aided in this declension, as did also the secession of Dr. Elliotson to the newly-established University College, and the foundation of a fresh school at King's College, where for a time the surgical lectures were given by Mr. Joseph Henry Green, although a surgeon of St. Thomas's.

Owing to the unprosperous state of affairs in 1842, the Governors came forward to reorganize the school, and the aid of Mr. R. D. Grainger, whose popularity had been established in the Webb Street private school, was obtained. Mr. Joseph H. Green also rejoined the school; and Dr. Marshall Hall, Dr. Hodgkin, Dr. Martin Barry, Dr. Gregory, and Mr. Benjamin Travers contributed to its efficiency. This state of affairs continued until 1858, when the Governors gave back the management, and its attendant risks, into the hands of the lecturers.

For some years it was maintained with difficulty, and much self-sacrifice on the part of the staff, during what may be termed a transitional period, in the hope, now realized, of its once more developing into an institution worthy of its old traditionary glories.

From its foundation down to the year 1862, the Hospital

occupied the original site near London Bridge, but in that year the property was sold for the extension of the railway accommodation, and the establishment temporarily removed to the Surrey Gardens, where it was carried on till the Summer of 1871. In 1868 the first stone of the new Hospital at Westminster Bridge was laid by the Queen, and the completed building was opened by Her Majesty in 1871. In September the patients were first admitted into the new Hospital, and the Medical School was opened on October the 2nd.

The original Hospital latterly contained 500 beds. The present building contains in all 572 beds. It consists of six blocks appropriated to the reception of patients; with one for the administrative and other offices, and one for the Medical School. The Ward blocks, though connected by corridors, stand apart, so as to afford free exposure in all directions. The Wards, with the exception of four which are placed on the ground floor, occupy the first, second, and third floors. Generally, each Ward affords accommodation for 28 beds, which are placed against the piers between the windows, so as to secure thorough ventilation. In a small Ward annexed to each larger Ward, there are two beds for cases requiring special care or treatment.

Of the whole accommodation of the Hospital, about 180 beds are appropriated to ordinary Medical cases, and 230 to ordinary Surgical cases. There are also special Wards for the reception of diseases peculiar to women; for diseases of the eye; for venereal affections; and for children under six years of age. In one of the blocks, separated from the rest of the establishment, there are Wards for infectious diseases.

The space provided for each bed in the ordinary Wards is upwards of 1,800 cubic feet, and in the block appropriated to infectious diseases, about 2,500 cubic feet.

The Out-patients' Department is extensive and well arranged, and every facility is afforded for the treatment of different forms of Medical and Surgical casualties and diseases.

During the twelve months ending December 31st, 1885, the number of patients admitted into the Hospital amounted

to 4,526. In the same period, 22,722 Out-patients have been treated, and in the Maternity department 2,202 women have been attended at their own homes. Casualties, to the number of 52,354 attendances, were treated during the same period.

The School buildings stand at the southern extremity of the Hospital, from which they are quite isolated. They contain ample accommodation for large classes of students.

The Museum is one of the most important in the metropolis. There is a large Reading Room and Library for the use of the pupils.

In addition to these are the various Lecture Rooms, the Dissecting Rooms, the Laboratories for Practical Physiology and for Practical Chemistry, and the Post-mortem Rooms.

The Committee of the "NIGHTINGALE FUND" have arrangements with the authorities of St. Thomas's for educating Women as Hospital Nurses. On the satisfactory completion of one year's training, they will be required to enter into service as Nurses in the Metropolitan or Provincial Hospitals or Infirmarys. A limited number of gentlewomen can be admitted under special agreements to this course of training, with a view to qualify themselves for superior appointments.

The Regulations as to the admission of Candidates may be obtained by writing to Henry Bonham-Carter, Esq., the Secretary of the Nightingale Fund, 5, Hyde Park Square, London, W.

Institutions requiring trained Superintendents or Nurses are requested to apply to the Secretary of the Nightingale Fund, or to Mrs. W. W. Wardroper, the Matron of the Hospital, giving as long previous notice as possible of their requirements.

Women wishing to be trained should, whenever it is possible, make personal application to Mrs. Wardroper, to be entered on the list of Candidates, for admission as vacancies occur.

MEDICAL OFFICERS, LECTURERS, &c.,
OF
ST. THOMAS'S HOSPITAL
AND
MEDICAL SCHOOL.

~~~~~  
CONSULTING PHYSICIANS.

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[Square, W.  
Sir J. RISDON BENNETT, M.D. EDIN., F.R.S. 22, Cavendish Square, W.

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JOHN HARLEY, M.D. LOND. .. .. 9, Stratford Place, W.

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GEORGE GULLIVER, M.A., M.B. OXON. 16, Welbeck Street, W.

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ASSISTANT PHYSICIAN FOR DISEASES OF THROAT.

F. SEMON, M.D. BERLIN .. .. 39, Wimpole Street, W.

ASSISTANT SURGEONS.

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W. ANDERSON, Esq. .. .. 13, Welbeck Street, W.  
B. PITTS, Esq., M.A., M.C. CANTAB. 31, Harley Street, W.  
(Vacant.)

## MEDICAL OFFICERS, &c.—*Continued.*

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CANTAB. .. .. St. Thomas's Hospital, S.E.

### RESIDENT ASSISTANT SURGEON.

W. H. BATTLE, Esq. .. .. St. Thomas's Hospital, S.E.

### ANÆSTHETISTS.

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E. F. WHITE, Esq. .. .. 7, Dealtry Road, Putney, S.W.

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W. J. KILNER, B.A., M.B. CANTAB. .. 104, Ladbroke Grove Road, W.

### APOTHECARY.

S. PLOWMAN, Esq. .. .. St. Thomas's Hospital, S.E.

### DEMONSTRATORS OF MORBID ANATOMY.

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W. B. HADDEN, M.D. LOND. .. .. 21, Welbeck Street, W.

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H. RAYNER, M.D. .. .. Hanwell, W.

EDWARD SEATON, M.D. LOND. .. .. 35, George St., Hanover Square, W.

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### CURATOR OF THE MUSEUM.

S. G. SHATTOCK, Esq., F.R.C.S.

### LIBRARIAN.

E. H. DENISON, Esq.

### SECRETARY TO SCHOOL.

GEORGE RENDLE, Esq., M.R.C.S.  
4, Park Hill, Forest Hill, S.E.

### DEAN OF THE SCHOOL.

W. M. ORD, M.D.  
37, Upper Brook Street, W.



## LECTURES AND DEMONSTRATIONS.

|                                                                  |                                                                                                                                 |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <i>Medicine</i> .. .. .                                          | { Dr. BRISTOWE.<br>Dr. ORD.                                                                                                     |
| <i>Clinical Medicine</i> .. .. .                                 | { Dr. BRISTOWE.<br>Dr. STONE.<br>Dr. ORD.<br>Dr. HARLEY.<br>Dr. GERVIS.                                                         |
| Do. Obstetric                                                    |                                                                                                                                 |
| <i>Surgery</i> .. .. .                                           | { Mr. SYDNEY JONES.<br>Sir WILLIAM MAC CORMAC.<br>Mr. SYDNEY JONES.<br>Mr. CROFT.<br>Sir WILLIAM MAC CORMAC.<br>Mr. MAC KELLAR. |
| <i>Clinical Surgery</i> .. .. .                                  | { Mr. CROFT.                                                                                                                    |
| Do. Special Course ..                                            |                                                                                                                                 |
| <i>Descriptive Anatomy</i> .. .. .                               | { Mr. REID.<br>Mr. ANDERSON.                                                                                                    |
| <i>General Anatomy and Physiology</i>                            | { Dr. JOHN HARLEY.                                                                                                              |
| <i>Practical Physiology</i> .. .. .                              | { Dr. T. CRANSTOUN CHARLES.                                                                                                     |
| <i>Diseases of the Eye</i> .. .. .                               | { Dr. T. CRANSTOUN CHARLES.                                                                                                     |
| <i>Chemistry and Practical Chemistry</i>                         | { Mr. NETTLESHIP.                                                                                                               |
| <i>Midwifery, and the Diseases of Women and Children</i> .. .. . | { Dr. BERNAYS.                                                                                                                  |
| <i>Physics and Natural Philosophy</i> ..                         | { Dr. GERVIS.                                                                                                                   |
| <i>Materia Medica and Therapeutics</i> ..                        | { Dr. STONE.                                                                                                                    |
| <i>Forensic Medicine and Toxicology</i>                          | { Dr. STONE.                                                                                                                    |
| <i>Pathological Anatomy</i> .. .. .                              | { Mr. CLUTTON, Dr. BERNAYS, and Dr. CORY.                                                                                       |
| <i>Botany</i> .. .. .                                            | { Dr. PAYNE and Dr. SHARKEY.                                                                                                    |
| <i>Comparative Anatomy</i> .. .. .                               | { Mr. A. W. BENNETT.                                                                                                            |
| <i>Mental Disease</i> .. .. .                                    | { Dr. GULLIVER.                                                                                                                 |
| <i>Public Health and Sanitary Science</i> ..                     | { Dr. H. RAYNER.                                                                                                                |
|                                                                  | { Dr. E. SEATON.                                                                                                                |

## TEACHERS OF PRACTICAL SUBJECTS &amp; DEMONSTRATORS.

|                                               |                                                        |
|-----------------------------------------------|--------------------------------------------------------|
| <i>Practical Chemistry</i> .. .. .            | Dr. BERNAYS.                                           |
| <i>Practical and Manipulative Surgery</i>     | { Mr. MAC KELLAR,<br>Mr. CLUTTON, and Mr. PITTS.       |
| <i>Demonstrations in Anatomy</i> .. .. .      | { Mr. REID, Mr. ANDERSON,<br>Dr. TAYLOR, Mr. BALLANCE. |
| <i>Demonstrations in Morbid Anatomy</i> ..    | Dr. SHARKEY and Dr. HADDEN.                            |
| <i>Demonstrations in Morbid Histology</i> ..  | Dr. ACLAND.                                            |
| <i>Demonstrations in Physiology</i> .. .. .   | { Mr. COPEMAN.                                         |
| <i>Demonstrations in Practical Physiology</i> |                                                        |
| <i>Diseases of the Eye</i> .. .. .            | { Mr. NETTLESHIP and Mr. LAWFORD.                      |
| <i>Diseases of the Skin</i> .. .. .           | { Dr. PAYNE.                                           |
| <i>Diseases of the Throat</i> .. .. .         | { Dr. F. SEMON.                                        |
| <i>Diseases of the Ear</i> .. .. .            | { Mr. CLUTTON.                                         |
| <i>Diseases of the Teeth</i> .. .. .          | { Mr. C. E. TRUMAN.<br>(Vacant.)                       |

TIMES OF ATTENDANCE OF THE PHYSICIANS AND SURGEONS  
IN THE WARDS.

|                           | Mon. | Tues. | Wed. | Thurs. | Fri. | Sat. |
|---------------------------|------|-------|------|--------|------|------|
| Dr. BRISTOWE .....        | —    | 2     | —    | —      | 2    | —    |
| Dr. STONE.....            | 2    | —     | —    | 2      | —    | —    |
| Dr. ORD .....             | 2    | —     | —    | 2      | —    | —    |
| Dr. HARLEY.....           | —    | 2     | —    | —      | 2    | —    |
| Dr. GERVIS .....          | —    | 2     | —    | —      | 2    | —    |
| Mr. SYDNEY JONES.....     | —    | 2     | —    | —      | 2    | —    |
| Mr. CROFT .....           | 2    | —     | —    | 2      | —    | —    |
| SIR WILLIAM MAC CORMAC .. | 2    | —     | —    | 2      | —    | —    |
| Mr. MAC KELLAR .....      | —    | 2     | —    | —      | 2    | —    |
| Mr. NETTLESHIP .....      | —    | 2     | —    | 2      | —    | —    |

TIMES OF ATTENDANCE OF THE ASSISTANT-PHYSICIANS AND  
ASSISTANT-SURGEONS ON THE OUT-PATIENTS.

|                                 | Mon. | Tues. | Wed. | Thurs. | Fri. | Sat. |
|---------------------------------|------|-------|------|--------|------|------|
| Dr. PAYNE .....                 | —    | 1.30  | —    | —      | 1.30 | —    |
| Dr. SHARKEY .....               | 1.30 | —     | —    | 1.30   | —    | —    |
| Dr. GULLIVER .....              | —    | —     | 1.30 | —      | —    | 1.30 |
| Dr. CORY (Women and Children).. | —    | —     | 1.30 | —      | —    | 1.30 |
| Mr. CLUTTON .....               | —    | 1.30  | —    | —      | 1.30 | —    |
| Mr. ANDERSON .....              | 1.30 | —     | —    | 1.30   | —    | —    |
| Mr. PITTS .....                 | —    | —     | 1.30 | —      | —    | 1.30 |
| (Vacant) .....                  | 1.30 | 1.30  | —    | —      | —    | —    |

TIMES OF ATTENDANCE IN THE OUT-PATIENT SPECIAL  
DEPARTMENTS.

|                                     | Mon. | Tues. | Wed.  | Thurs. | Fri. | Sat. |
|-------------------------------------|------|-------|-------|--------|------|------|
| Mr. NETTLESHIP } (Diseases of the { | —    | 1.30  | —     | 1.30   | 1.30 | —    |
| Mr. LAWFORD } Eye) {                | 1.30 | —     | 1.30  | —      | —    | —    |
| Dr. PAYNE (Diseases of Skin) ...    | —    | —     | 1.30  | —      | —    | —    |
| Dr. SEMON (Diseases of Throat) ..   | —    | 1.30  | —     | —      | 1.30 | —    |
| Mr. CLUTTON (Diseases of Ear) ..    | 1.30 | —     | —     | —      | —    | —    |
| Mr. TRUMAN } (Diseases of Teeth)    | —    | 10    | —     | —      | 10   | —    |
| (Vacant.) }                         |      |       |       |        |      |      |
| Dr. CORY (Vaccination) .....        | —    | —     | 11.30 | —      | —    | —    |

DAYS AND HOURS OF LECTURES AND DEMONSTRATIONS.

| WINTER SESSION.                        | Mon. | Tues. | Wed. | Thurs. | Fri. | Sat.   | Years of Attendance. |
|----------------------------------------|------|-------|------|--------|------|--------|----------------------|
| Physics .....                          | —    | —     | —    | —      | —    | 12     | 1st Year.            |
| Chemistry .....                        | —    | 10½   | —    | 10½    | 10½  | —      | do.                  |
| Descriptive and Surgical Anatomy ..    | —    | 9½    | —    | 9½     | —    | 9½     | do.                  |
|                                        | 9½   | —     | 9½   | —      | 9½   | 10½    | 2nd.                 |
| Anatomical Demonstrations* .....       | 10—4 | 10—4  | 10—4 | 10—4   | 10—4 | 10—2   | 1st & 2nd.           |
| Physiology .....                       | —    | 4     | 4    | —      | 4    | —      | do.                  |
| Physiological Demonstrations .....     | 2    | —     | —    | 2      | —    | —      | do.                  |
| Practical and Manipulative Surgery†    | —    | —     | —    | —      | —    | 9      | 3rd.                 |
| Medicine .... { Oct. 1st to Dec. 31st  | 4    | —     | —    | 4      | 4    | —      | } do.                |
| { Jan. 1st to Mar. 31st                | 9    | —     | —    | 9      | 9    | —      |                      |
| Surgery..... { Oct. 1st to Dec. 31st   | 9    | —     | —    | 9      | 9    | —      | } do.                |
| { Jan. 1st to Mar. 31st                | 4    | —     | —    | 4      | 4    | —      |                      |
| Pathological Anatomy (Practical) ..    | —    | —     | —    | —      | —    | 11½—1½ | 3rd or 4th.          |
| Diseases of the Eye    } Oct., Nov., { | 5    | —     | —    | 5      | 5    | —      | } do.                |
| Diseases of the Skin   } Dec.       {  | —    | —     | 4½   | —      | —    | —      |                      |
| Clinical Surgery (Special Course) ..   | —    | 9     | —    | —      | —    | —      | do.                  |
| Obstetric Demonstrations .....         | —    | —     | 9    | —      | —    | —      | do.                  |

Demonstrations of Morbid Anatomy 2 p.m. daily.

| SUMMER SESSION.                      | Mon.  | Tues. | Wed.  | Thurs. | Fri.  | Sat. | Years.       |
|--------------------------------------|-------|-------|-------|--------|-------|------|--------------|
| Botany . . . . .                     | —     | 10    | 10    | —      | —     | 10   | 1st Year.    |
| Materia Medica . . . . .             | 12    | —     | 12.30 | —      | 12    | —    | do.          |
| Practical Chemistry . . . . .        | 10—12 | —     | —     | 10—12  | 10—12 | —    | do.          |
| Practical Physiology . . . . .       | 2     | 2     | 2     | —      | 2     | —    | do.          |
| Anatomical Demonstrations* . . . . . | 10—12 | 2—4   | —     | 10—12  | 2—4   | —    | 2nd.         |
| Midwifery . . . . .                  | 4     | 4     | —     | 4      | 4     | —    | do.          |
| Comparative Anatomy . . . . .        | 9     | —     | —     | 9      | —     | —    | do.          |
| Practical and Manipulative Surgery†  | —     | —     | —     | —      | 4     | —    | do.          |
| Forensic Medicine . . . . .          | —     | 9     | —     | 9      | —     | 9    | 3rd.         |
| Pathological Anatomy . . . . .       | —     | —     | 9     | —      | 9     | —    | do.          |
| Do. Demonstration . . . . .          | 4     | —     | —     | —      | —     | —    | do.          |
| Mental Diseases . . . . .            | —     | —     | —     | —      | 12    | —    | 3rd. or 4th. |
| Public Health and Sanitary Science   | —     | —     | 4     | —      | —     | —    | do.          |
| Clinical Surgery (Special Course) .. | 9     | —     | —     | —      | —     | —    | do.          |

Demonstrations of Morbid Anatomy 2 p.m. daily.

The times of delivery of the Clinical Lectures are arranged, in accordance with other work,  
in the course of the Session.

\* The Dissecting Room is open to the Students from 9 a.m. till 5 p.m.

† Classes in Practical and Operative Surgery are held four times a week for six weeks prior to the final examinations of the Examining Board in January, April, and July. In connection with these Classes Clinical Instruction is given in the Wards by the Resident Assistant Surgeon, and a course of demonstrations on Museum specimens is given by the Curator, Mr. SHATTOCK.



**SURGICAL OPERATIONS** are performed on Wednesdays and Saturdays at 1.30 p.m., and on other days in cases of emergency.

**In-Patients** are admitted daily at 11.30 a.m.

**Out-Patients** are seen by the Assistant-Physicians and Assistant-Surgeons on the days stated in the Table (see p. 20). *Diseases of Women and Children* are treated, on Wednesdays and Saturdays at 1.30, by Dr. CORY.

**Casual Patients** are seen by the Resident Assistant-Physician, the Resident Assistant-Surgeon, the House-Surgeons, Assistant House-Surgeons and Dressers at 12 noon.

## SPECIAL DEPARTMENTS.

(*For Times of Attendance see Table, page 20.*)

**Diseases of the Eye.**—Operations are performed at 4 p.m. on Tuesdays, and at 2 p.m., on Fridays. Ophthalmoscopic Demonstrations and Clinical Lectures on Diseases of the Eye are given every week, and a class for learning the Ophthalmoscope is held each Session, by Mr. NETTLESHIP and Mr. LAWFORD.

**Diseases of the Skin.**—A Course of Lectures is given by Dr. PAYNE in the Winter Session.

**Diseases of the Throat.**—A short Course of Clinical Lectures is given to senior students by Dr. SEMON during the Winter Session.

**Diseases of the Ear.**—Instruction is given by Mr. CLUTTON on Mondays at 1.30 p.m.

**Diseases of the Teeth.**—Mr. TRUMAN and Mr. \_\_\_\_\_ give instruction in Dental Surgery on Tuesdays and Fridays at 10 a.m.

**Vaccination.**—Practical Instruction is given by Dr. CORY once a week.

NOTE.—St. Thomas's Hospital is now recognised as a Local Vaccination Station, and Dr. CORY is authorised to give certificates of instruction in Vaccination according to the requirements of the Local Government Board. Fee One Guinea.

Post-Mortem Examinations by Dr. SHARKEY and Dr. HADDEN, and Pathological Demonstrations, daily at 2 p.m.

Practical Instruction in the Administration of **Anæsthetics** is given by Mr. TYRRELL and Mr. WHITE.

In addition to the Clinical Instruction given in the Wards and the Out-Patients' Rooms by the Medical and Surgical Officers, and the Special Course of Clinical Surgery, Lectures on Clinical Medicine are delivered weekly during both the Winter and Summer Sessions by the Physicians, and on Clinical Surgery by the Surgeons, on the visiting day following their "taking-in" week.

## SUGGESTIONS TO STUDENTS.

Gentlemen who propose to obtain the Licence of the Royal College of Physicians of London, the Diploma of Member of the Royal College of Surgeons of England, or the Licence of the Society of Apothecaries, must, in order to be able to register their attendance upon Hospital practice or lectures, possess the certificate in Arts granted by one of the bodies whose certificates are recognised by the General Medical Council. The Regulations of the Medical Council as to the registration of Medical Students contain particulars of the Preliminary Examinations, and can be had from Spottiswoode & Co., 54, Gracechurch Street, E.C.

Students intending to obtain Medical Degrees in the University of London must pass both the Matriculation \* and the Preliminary Scientific Examinations before commencing their regular Medical Studies.

For the Preliminary Scientific, and the Intermediate M.B. Examinations, Special Classes are held (see p. 27). Students not proceeding to degrees in the University of London, will reap much advantage by acquiring, in the Preliminary Scientific Class, the scientific knowledge and training demanded by the University; both in respect to the formation of a sound foundation for Medical Study and because such knowledge is necessary in competing for the Entrance Science Scholarships.

Students proposing to enter should put themselves, at an early period, in communication with the Medical Secretary, who will be always ready to advise them. It is necessary, when writing to him, to state what Preliminary Examination has been passed, and if the Student's name has been registered at the Medical Council Office.

Students on joining must produce a Certificate of Preliminary Examination or of Registration. It is best to join at the beginning of a Session, Winter or Summer, but it is in the power of a Student to enter at any time.

Students are not obliged to remain at the Hospital more than three years, provided they have obtained the certificates of attendance upon lectures required by the respective licensing bodies. They must, however, in the event of leaving the Hospital, be engaged during the fourth year in the acquisition of professional knowledge elsewhere.

It is right, however, that Students should be made aware that the loss of the fourth year of Hospital Study is strongly to be deprecated, since

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\* *Candidates who passed the Matriculation Examination in January, 1885, or previously, will be allowed to date the commencement of their Professional Studies from that Examination in accordance with former Regulations.*—University of London Calendar 1886-7, p. 159, Note.



at that period the necessity for attending Lectures has ceased, and their whole time can be spent in the study of disease in the wards of the Hospital.

Students, when qualified, are advised to use every effort to obtain the Senior appointments open to them, especially those of Assistant House Physician, House Physician, Assistant House Surgeon, House Surgeon, and Resident Accoucheur. These appointments are accessible to Students of the Hospital without payment, and offer opportunities for obtaining practical professional knowledge, which cannot be estimated too highly.

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Students are recommended to attend the Lectures, &c., in the following order; and, in accordance with the Regulations of the Qualifying Bodies, are required to show by their answers in the Sessional Examinations, that they have paid proper attention to the Lectures in each Course.

FIRST YEAR.

Winter Session.—Anatomy, Dissections, Physiology, Chemistry.

Summer Session.—Materia Medica, Botany, Practical Physiology, Practical Chemistry.

SECOND YEAR.

Winter Session.—Anatomy, Physiology, Dissections, Clinical Medicine, Clinical Surgery.

Summer Session.—Midwifery, Comparative Anatomy, Practical Surgery, Clinical Medicine, Clinical Surgery.

N.B.—Students should defer further attendance on Lectures until they shall have passed the Second Examination of the Examining Board in England.

THIRD YEAR.

Winter Session.—Medicine, Surgery, Practical Surgery, Clinical Medicine, Clinical Surgery.

Summer Session.—Forensic Medicine, Pathological Anatomy, Clinical Medicine, Clinical Surgery.

In addition to the above, Students are advised, during their first Winter Session, to attend the Lectures on Physics and Natural Philosophy; in their third or fourth Summer Session, to attend the extra Course of Practical and Manipulative Surgery; and the Lectures on Mental Disease, and on Public Health; and in the third or fourth Winter the Practical Course of Pathological Anatomy, and the Obstetric Demonstrations. The Course on Diseases of the Eye, and the teaching in the Eye Department should be attended in the third and fourth years. All these Courses are freely open to Students of the Hospital.

They are also strongly recommended to devote, during the whole period of their attendance at the Hospital, as much time as they can spare from other engagements, to Clinical study in the wards and in the out-patients' rooms.

FEES FOR ATTENDANCE ON THE LECTURES AND ON THE PRACTICE OF THE HOSPITAL.

PERPETUAL TICKETS.

Admitting to Hospital Practice and Lectures for an unlimited period.

The Perpetual Fee to Hospital Practice and Lectures may be paid in several ways:

1st. One Hundred and Twenty-five Guineas paid on entrance;
2nd. One Hundred and Thirty-eight pounds in two payments, £75 on entrance, and £63 at the beginning of the next year;

3rd. Payment by three instalments, viz., of £65 at the beginning of the first year, £50 at the beginning of the second year, and £30 at the beginning of the third year.

Gentlemen entering at St. Thomas's in the second* year of their Studentship pay £65 for that year; £25 for the third year; or upon paying £85 on entrance, they will become Perpetual Students. Students entering in their third year pay £40; for the next year £20, or one payment of £55 on entrance will entitle them to be Perpetual Students.

The Fee for attendance on the *general* subjects required of Students in Dental Surgery, is for the two years, £55, or by instalments, £50 for the first year, and £10 for the second year. If certificates for *Dental* practice are also required, the special fee for that subject (page 26) has to be paid.

Regularly qualified Medical Practitioners are admitted to the Hospital practice, and to the Lectures and Library, on payment of a fee of £12. 10s. for unlimited attendance; but are not entitled to receive certificates for such attendance without payment for the special certificates required (see p. 26).

All privileges in respect of Hospital attendance are granted subject to the approval of the Governors, and Students must conform to the regulations of the Hospital and Medical School, on which understanding alone cards of attendance are granted.

EXTRA CHARGES.

Students are now supplied with chemicals and materials to work with in the courses of Chemistry and Physiology without extra charge, but there are certain instruments and materials required during the course of study, as follows, viz.:

* Students who have commenced the study of the Profession otherwise than by attendance at a Medical School, will be considered to be first year's Students on joining the Medical School, as the time previously spent does not count until three years' Lectures have been attended, but a deduction from the Perpetual Fee will be allowed in such cases.

NOTE.—Cheques may be made payable to the Medical Secretary, and crossed "London and County Bank, Lambeth."

Those attending the Class of Practical Physiology in the summer must provide themselves with Microscopes.

Students Dissecting pay for the parts they dissect at fixed rates, which are notified in the Library.

The Clinical Clerks must provide themselves with a Stethoscope and Registering Clinical Thermometer. The Dressers are required to have a Registering Clinical Thermometer, a Pocket Case of Instruments, and a Case of Silver Catheters.

The fee for Practical Pharmacy is not included in the Perpetual fee, as many Students have received instruction in it before joining a Medical School; but instruction in Pharmacy and Pharmaceutical Manipulation, to meet the requirements of the Examining Board in England, and of the Society of Apothecaries, is given in the Dispensary of the Hospital by the Apothecary, Mr. S. PLOWMAN. The fee for this course is 5 Guineas for three months. Application to be made to the Medical Secretary.

The different Courses of Lectures, or the Hospital Practice, may also be attended separately on the following terms, which entitle to Certificates for such Attendances.

For the Medical and Surgical Practice, including Clinical Lectures and the Special Departments.

Three months	£15	Twelve months	£40
Six ditto	£26	Perpetual	£55
Nine ditto	£35		

Dental Practice, 1 year 2 Gs., Perpetual 3 Gs.

Midwifery Practice, 5 Gs.

Ophthalmic Practice, 2 Gs.

For Lectures and Demonstrations.

1 Course. Perpetual.

Medicine, Surgery, Physiology, Anatomy, Chemistry each 7 Gs. .. 10 Gs.

Midwifery 5 „ .. 6 „

Materia Medica, Botany, Physics, Forensic Medicine, } 4 „ .. 5 „

General Pathology, and Comparative Anat. each }

Mental Diseases, Diseases of the Eye, Public Health each 2 „ .. 3 „

* Practical Chemistry, Practical Surgery, Practical Physiology, Pathological Anatomy, including the } 6 „ —

Practical Course each }

Dissections, three months 4 Gs., six months 6 Gs., Perpetual 10 Gs.

Operative Surgery.—A voluntary class will be formed by Messrs. MACKELLAR and CLUTTON during the Summer, and at other convenient times, for Gentlemen who wish to prepare for the Fellowship or other Examinations. This course will not include Operations on the Eye-ball. Fee, £5 5s.

Operative Surgery of the Eye.—A voluntary class will be formed by Mr. LAWFORD during the Summer. Fee, £2 2s.

Diseases of the Skin.—The Lectures on this subject are open to Gentlemen, not Students of the Hospital, by special arrangement.

Laryngology.—A special course is given by Dr. SEMON during the Winter Session. Fee for Gentlemen, not Students of the Hospital, 3 Gs.

Special Courses of Obstetric Demonstrations are given by Dr. CORY throughout the year. Fee, £3 3s.

Public Health and Sanitary Science.—Lectures are open to Gentlemen, not Students of the Hospital, and instruction will be given specially to Candidates for Certificates and Examinations in Sanitary Science and Hygiene.

* These amounts do not include the extra charges in the Practical Courses for Materials, Instruments, &c.

UNIVERSITY OF LONDON.

PRELIMINARY SCIENTIFIC AND INTERMEDIATE M.B. CLASSES.

PRELIMINARY SCIENTIFIC EXAMINATION.

Special Classes in the subjects required for the Preliminary Scientific Examination at the University of London, will be held from October to July.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Botany. A. W. BENNETT, M.A. . . .	—	—	11	—	—	—
Chemistry, Inorganic	Winter 11.30	Summer 11	—	—	—	—
„ Practical			—	12	—	—
	—	—	—	Winter	11.30	—
Physics. W. H. STONE, M.A., M.B.	—	—	—	—	January to July 3	Winter 12
Zoology. G. GULLIVER, M.A., M.B..	—	Winter 1.30	—	—	—	Summer 11

N.B.—A Microscope and simple Dissecting Apparatus must be provided by each Member of the Class.

Fee to Students of the Hospital, inclusive of
Practical Chemistry and Chemicals *Ten Guineas.*
To others, ditto *Twelve Guineas.*
Fee for any single subject *Four Guineas.*
Subsequent Courses, half Fee, (except Chemicals, for which a charge of One Guinea and a half is made).

INTERMEDIATE EXAMINATION IN MEDICINE.

Special Classes in the subjects required for this Examination are held from January to July.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Anatomy. R. W. REID, C.M.	11	—	—	11	—	—
Materia Medica and Pharmaceutical Chemistry.	—	12	—	12	—	—
Organic Chemistry	—	—	10.30	—	—	—
Organic Analysis	—	—	—	—	—	10
Physiology. T. C. CHARLES, M.D. ..	—	—	—	—	Winter 2 Summer 1	—

Fee to Students of the Hospital inclusive of					
Organic Analysis and Chemicals*	<i>Nine Guineas.</i>
To others ditto	..	..	..	..	<i>Twelve Guineas.</i>
Fee for any Single Subject	..	..	..	..	<i>Three Guineas.</i>

Subsequent Courses, half Fee (except Chemicals, for which full fee is charged).

* Instruction and Practice in Organic Analysis is essential for this Examination.

N.B.—Private Classes are held for the Final M.B. Examination.

SCHOLARSHIPS, PRIZES, APPOINTMENTS, AND HONORARY DISTINCTIONS.

OPEN SCHOLARSHIPS IN NATURAL SCIENCE.

As an inducement to the study of Natural Science before the commencement of the strictly Medical Course, two Scholarships, of the value of £100 and £60 respectively, are awarded annually, after an examination in Physics, Chemistry, and either Botany or Zoology, at the option of Candidates. The Examinations for these Scholarships will be held on October 4th, 5th, and 6th, 1886, the subjects being the same as those for honours in the Preliminary Scientific Examination of the London University, viz.: Botany, Zoology, Inorganic Chemistry (including Practical Chemistry), and Physics or Natural Philosophy. These Scholarships are open to all Students who have passed a recognised Preliminary Examination in Arts, and have not yet attended Lectures on Anatomy and Physiology of the first year, without any condition as to their becoming Students of the Hospital, except in the case of successful Candidates, who must enter at once as Perpetual Pupils. Chemistry and Physics are compulsory subjects for this Examination, and Candidates must take up one of the other subjects at their option. The Examination will be conducted by means of written papers and practical work. The names of Competitors with Certificate of Preliminary Examination must be sent to the Secretary not later than September 30th.

THE WILLIAM TITE SCHOLARSHIP.

This Scholarship, founded by the late Sir W. TITE, C.B., M.P., F.R.S., and endowed with £1,000 Consols, producing £30 per Annum, is awarded each year to the Student placed highest in the 1st Class List in the examinations at the end of the first Winter Session. Preference, in case of equality between Students, is to be given to the son of a medical man, and more particularly of one who has been educated at St. Thomas's Hospital or is in Practice in Bath.

THE MUSGROVE SCHOLARSHIP.

This Scholarship, founded by Sir JOHN MUSGROVE, Bart., the late President of the Hospital, and endowed with £1,400 Consols, producing 40 Guineas per Annum, is awarded biennially to the Student who shall take the highest place in the 1st Class List in the examinations at the end of the Second Winter Session. It is tenable for two years, provided the holder obtains a place in the 1st Class in the Examinations at the end of the third winter.

THE PEACOCK SCHOLARSHIP.

This Scholarship, founded by the will of the late Dr. Thomas Bevill Peacock, for many years Physician, and at the time of his death Consulting Physician, to St. Thomas's Hospital, is of the same value as the Musgrove Scholarship, is awarded and held upon the same terms; and is given every second year in alternation with that Scholarship.

Gentlemen obtaining these Scholarships are not precluded from receiving any of the Prizes awarded at the subsequent periodical examinations.

P R I Z E S.

The following Scholarships, Prizes, and Medals, will be offered for Competition during the year 1886-1887:—

TWO OPEN SCHOLARSHIPS IN NATURAL SCIENCE of the value of £100 and £60 respectively, at Entrance.

AT THE END OF FIRST YEAR.

Winter.

1st.	..	The William Tite Scholarship	..	..	..	£30.
2nd.	..	College Prize	..	..	..	£20.
3rd.	..	Ditto	..	..	..	£10.

Summer.

1st.	..	College Prize	..	..	..	£15.
2nd.	..	Ditto	..	..	..	£10.

SECOND YEAR.

Winter.

1st.	..	The Musgrove Scholarship	..	..	..	£42.
2nd.	..	College Prize	..	..	..	£20.
3rd.	..	Ditto	..	..	..	£10.

Summer.

1st.	..	College Prize	..	..	..	£15.
2nd.	..	Ditto	..	..	..	£10.

THIRD YEAR.

Winter.

Second Tenure of The Peacock Scholarship (if holder obtains 1st Class in this examination) £42.

1st.	..	College Prize	..	..	..	£20.
2nd.	..	Ditto	..	..	..	£15.
3rd.	..	Ditto	..	..	..	£10.

Summer.

1st.	..	College Prize	..	..	..	£15.
2nd.	..	Ditto	..	..	..	£10.

Students of each year are classed according to their respective merits in the examinations, and those in the *first* class in each year receive Certificates of Honour, and a preference in the selection for Hospital Appointments.

In addition there are awarded—

THE CHESELDEN MEDAL, *Annually.*

THE MEAD MEDAL, *do.*

THE SOLLY MEDAL AND PRIZE, *Biennially.*

THE GRAINGER TESTIMONIAL PRIZE, *Annually.*

THE TREASURER'S GOLD MEDAL, *do.*

The CHESELDEN MEDAL, founded by the late GEORGE VAUGHAN, Esq., is annually awarded to the Fourth Year's Student who most distinguishes himself in respect of a Special Practical Examination in Surgery and Surgical Anatomy.

The MEAD MEDAL, founded by Mr. and Mrs. NEWMAN SMITH, is awarded annually, to a Fourth Year's Student, in respect of a Special Practical Examination in Medicine, Pathology and Hygiene.

Competitors for either of these Medals must have been Students of St. Thomas's for at least two out of the four Winter Sessions.

The **SOLLY MEDAL**, together with a Prize in Money, will be awarded biennially. Those Students are eligible to compete who shall be of from three to six years' standing. The award is made for the best series of Reports of Surgical cases coming under the Student's personal observation in the Wards, not, however, to exceed ten in number. Preference is given, merit in other respects being equal, to Reports illustrated by the author's drawings, and short Clinical Remarks must accompany each Report. The next award will be made at the end of 1887-88, papers to be sent in before April 1st, 1888.

The **GRAINGER TESTIMONIAL PRIZE**, of the value of Fifteen Pounds, is awarded annually to the Student who shall have completed his third year of study at St. Thomas's Hospital, and not have exceeded his sixth year, for the best Anatomical or Physiological Essay devoted to the explanation of preparations and dissections illustrative of the subject. The successful Essay and the accompanying Preparations and Dissections will become the property of the Medical School. A small sum is provided annually to reimburse unsuccessful competitors for any expense which they may have incurred in the preparation of suitable illustrations. When such compensation is allowed, the Preparations and Dissections become the property of the Medical School. Subject to the approval of the School Committee, candidates may select their own topics; otherwise, the following two are given for selection:—1. A series of Preparations and Dissections illustrating the Anatomy of the Pharynx and Soft Palate, accompanied by an Essay on the Action of the various Muscles of these parts. 2. Dissections and Preparations illustrating the Innervation of the Heart, accompanied by an Essay on the Relations of Movements of the Heart to the Sympathetic and Cerebro-spinal Nervous Systems. Papers to be sent in before October 1st, 1887.

The **TREASURER'S GOLD MEDAL** for General Proficiency and Good Conduct, is awarded at the end of the 4th Winter Session to the Student who has passed through his pupilage in St. Thomas's Hospital in the most meritorious manner.

APPOINTMENTS.

Two **RESIDENT** and one **NON-RESIDENT HOUSE PHYSICIANS**, an **ASSISTANT HOUSE PHYSICIAN**, Two **HOUSE SURGEONS**, an **ASSISTANT HOUSE SURGEON**, and a **RESIDENT ACCOUCHEUR**, are selected every three months from Gentlemen who have obtained their professional diplomas; they hold office for three or six months. One House Physician, the Assistant House Physician, and the Assistant House Surgeon, are non-resident, but the other Officers, together with the Dressers and Obstetric Clerks, are provided with Rooms and Commons during their period of attendance in the Hospital, free of expense.

An **OPHTHALMIC CLINICAL ASSISTANT**, chosen from Qualified Students who have worked satisfactorily in the Ophthalmic Department, is appointed for six months with a Salary at the rate of £50 per annum, with board but not residence; the appointment is renewable for a limited period.

CLINICAL ASSISTANTS in the Special Departments for Diseases of the Skin, Throat, and Ear, are appointed every three months.

CLINICAL CLERKS, and **DRESSERS**, to In-Patients are selected to the number of at least 100 each year. They are chosen from amongst the most eligible pupils. **CLINICAL CLERKS**, and **DRESSERS**, for the Out-Patients are also appointed to the number of at least 80 to 100 each year.

ALL STUDENTS have the opportunity afforded them of being engaged in the performance of practical duties in connection with the Medical, Surgical, Obstetrical, Ophthalmic, and Pathological Departments of the Hospital.

TWO HOSPITAL REGISTRARS, at an annual Salary of £100 each, are appointed in each year. Preference will be given to Gentlemen who have been distinguished for merit, and have completed their studies in the School. The payment of the Registrars is subject to the presentation of a Report upon the Practice of the Hospital, and to such Report being regarded as satisfactory by the Medical Officers to whom it shall have been referred.

TWO OR MORE STUDENTS are selected from those who have completed their Second Winter Session, to act as Assistants in the Physiological Laboratory. They receive Certificates of Honour according to merit.

PROSECTORS are appointed in the early part of the Winter Session, and Certificates of Honour are awarded to the best Dissectors.

STUDENTS are likewise appointed to act as Assistants to the Demonstrators of Pathological Anatomy in the Post-mortem Room.

OBSTETRIC CLERKS, who reside and have Commons in the Hospital, are appointed in rotation. Each holds office for a fortnight, and Certificates of Honour are awarded to those Gentlemen who have satisfactorily attended Sixty Maternity cases.

Students have access, with the permission of the Officers under whose superintendence they are placed, to the Museums of Human and Comparative Anatomy and Pathology—of Materia Medica—of Botany—and of Chemistry and Mineralogy—and to the Laboratories of Practical Physiology and Practical Chemistry ; also, by special permission, to Dr. Stone's collection of Physical apparatus, and to a house fitted for the cultivation of Bacilli and other similar organisms, under the management of Dr. Acland and Mr. Ballance ; and to the Library, which contains a large collection of works of reference and modern text-books.

REGULATIONS FOR THE EXAMINATION AND CLASSIFICATION OF THE STUDENTS.

1. In accordance with the Regulations of the Qualifying Bodies, Students will be required to attend the Class Examinations in the subjects for which they have to be certified, and show by their answers to the questions that they have paid proper attention to the Lectures, otherwise their Schedules cannot be signed.

2. There shall be held at least two Examinations in each Winter and one in each Summer Session in each subject on which attendance is required during that Session, and the marks obtained in these Examinations shall be the basis for the Classification of Students and the Award of Prizes for each Session respectively. Provided that any extra Examination in the course of the Session, in any subject, be not allowed to interfere with the ordinary Lectures in other subjects.

3. The number of marks allotted to each subject in the following Schedule is not to be exceeded in case the number of Examinations held during the Session be more than two, but must be distributed amongst the several Examinations.

1st YEAR'S SUBJECTS.		2nd YEAR'S SUBJECTS— <i>continued</i> .	
WINTER	Anatomy 600		Physiology 600
	Practical Anatomy . . . 200		Total. . . 1400
	Physiology 600	SUMMER	Midwifery 500
	Chemistry 600		Comparative Anatomy . 100
	Total 2000		Practical Surgery . . . 100
			Total 700
SUMMER	Practical Chemistry . . 300	3rd YEAR'S SUBJECTS.	
	Materia Medica 300	WINTER	Medicine 650
	Botany 150		Surgery 650
	Practical Physiology . . 300		Practical Surgery . . . 200
	Total 1050		Total 1500
2nd YEAR'S SUBJECTS.		SUMMER	Forensic Medicine . . . 250
WINTER	Anatomy 600		Pathological Anatomy . . 350
	Practical Anatomy . . . 200		Total 600

4. All Students who have obtained at least one-third of the total number of marks in each subject, and not less than two-thirds of the total number allotted to all the subjects collectively, shall be placed in the 1st Class.

Those who have obtained one-third of the total number of marks allotted to all the subjects collectively shall be placed in the 2nd Class.

The names of those who do not obtain either a 1st or 2nd Class position will not be published, but a General List showing the exact position of each Student at every Examination shall be kept by the Secretary, from whom any Student can learn his own position, but no Lecturer shall make known to Students the number of marks obtained by any Student in any subject.

5. The Prizes shall be awarded to the Students holding the 1st, 2nd, and 3rd positions in the 1st Class of each Winter Session, and to those holding the 1st and 2nd positions of the 1st Class in each Summer Session.

6. The number of marks allotted to the Examinations for the MEAD and CHESELDEN Medals shall be 600 each.

7. In awarding the TREASURER'S Medal the number of marks obtained at the Sessional Examinations and in the MEAD and CHESELDEN Examinations shall be counted, provided that, as regards the Examination for the Medals, two-thirds of the maximum marks be obtained, but those obtained in the Entrance Scholarship Competition shall not be included.

8. The Authorities reserve the right of withholding any Prize, if no competitor of sufficient merit presents himself.

Distribution of Prizes for the Past Sessions.

SUMMER SESSION, 1885.

FIRST YEAR'S STUDENTS.

F. C. ABBOTT, <i>Gorleston</i>	...	...	...	...	...	{ College Prize, £15, and Certificate of Honour.
T. P. COWEN, <i>Upper Holloway</i>	...	...	...	...	...	{ College Prize, £10, and Certificate of Honour.
C. J. MARTIN, <i>Dalston</i>	...	...	...	...	...	Certificate of Honour.
H. GERVIS, <i>Harley Street</i>	...	...	...	...	...	Certificate of Honour.
E. A. ROBERTS, <i>Birmingham</i>	...	...	...	...	...	Certificate of Honour.
G. W. CHAPMAN, <i>Leicester</i>	...	...	...	...	...	Certificate of Honour.

SECOND YEAR'S STUDENTS.

C. H. ECCLES, <i>Brigg, Lincolnshire</i>	...	...	...	...	{ College Prize, £15, and Certificate of Honour.
Æq. { E. WEBSTER, <i>Lee</i>	...	...	...	...	{ College Prize, £10, and Certificate of Honour.
{ E. H. WRIGHT, <i>Jersey</i>	...	...	...	...	Certificate of Honour.
G. R. ANDERSON, <i>East India Road</i>	...	...	...	...	Certificate of Honour.

THIRD YEAR'S STUDENTS.

Æq. { S. W. WHEATON, <i>Battersea Park</i>	...	...	...	{ College Prize, £15, and Certificate of Honour.
{ H. J. MACEVOY, <i>Chantilly</i>	...	...	...	{ College Prize, £10, and Certificate of Honour.
H. J. SMYTH, <i>West Hampstead</i>	...	...	...	Certificate of Honour.
E. SOLLY, <i>Congleton</i>	...	...	...	Certificate of Honour.

WINTER SESSION, 1885-86.

ENTRANCE SCIENCE SCHOLARSHIPS.

A. F. STABB, <i>Ilfracombe</i>	...	...	...	...	...	{ Scholarship, £100,
						and Certificate of Honour.
S. G. TOLLER, <i>Notting Hill</i>	...	...	...	...	...	{ Scholarship, £60,
						and Certificate of Honour.

FIRST YEAR'S STUDENTS.

A. F. STABB, <i>Ilfracombe</i>	...	...	...	...	...	{ The Wm. Tite Scholarship,
						£30,
						and Certificate of Honour.
A. C. LANKESTER, <i>Leicester</i>	...	...	...	...	...	{ College Prize, £20,
						and Certificate of Honour.
C. R. BOX, <i>Camberwell</i>	...	...	...	...	...	{ College Prize, £10,
						and Certificate of Honour.
S. G. TOLLER, <i>Notting Hill</i>	...	...	...	...	...	Certificate of Honour.
E. JOBBINS, <i>Lee</i>	...	...	...	...	...	Certificate of Honour.
A. J. SWALLOW, <i>Clapham</i>	...	...	...	...	...	Certificate of Honour.
G. S. S. SMITH, <i>Lagos, West Africa</i>	...	...	...	...	...	Certificate of Honour.
T. A. DUKES, <i>Croydon</i>	...	...	...	...	...	Certificate of Honour.
E. E. WARE, <i>Exeter</i>	...	...	...	...	...	Certificate of Honour.
A. WENTWORTH JONES, <i>Godington, Oxon</i>	...	...	...	...	...	Certificate of Honour.
R. B. ECCLES, <i>Brigg, Lincolnshire</i>	...	...	...	...	...	Certificate of Honour.

SECOND YEAR'S STUDENTS.

F. C. ABBOTT, <i>Gorleston</i>	...	...	...	...	...	{ The Peacock Scholarship,
						40 Gs., and Certificate of Honour.
T. P. COWEN, <i>Upper Holloway</i>	...	...	...	...	...	{ College Prize, £20,
						and Certificate of Honour.
H. G. TURNEY, <i>Camberwell Grove</i>	...	...	...	...	...	{ College Prize, £10,
						and Certificate of Honour.
E. A. ROBERTS, <i>Birmingham</i>	...	...	...	...	...	Certificate of Honour.
A. N. BOYCOTT, <i>Rugeley</i>	...	...	...	...	...	Certificate of Honour.
C. J. MARTIN, <i>Dalston</i>	...	...	...	...	...	Certificate of Honour.
H. H. HULBERT, <i>Highworth</i>	...	...	...	...	...	Certificate of Honour.
Æq. { F. E. FORWARD, <i>Chard</i>	...	...	...	...	...	Certificate of Honour.
{ G. E. WEARY, <i>Devonport</i>	...	...	...	...	...	Certificate of Honour.
R. H. TOMPSETT, <i>Crewkerne</i>	...	...	...	...	...	Certificate of Honour.

THIRD YEAR'S STUDENTS.

C. H. ECCLES, <i>Brigg, Lincolnshire</i>	...	...	...	...	...	{ College Prize, £20,
						and Certificate of Honour.
E. HOBHOUSE, <i>Batcombe</i>	...	...	...	...	...	{ College Prize, £15,
						and Certificate of Honour.
F. FAWSSETT, <i>Surbiton</i>	...	...	...	...	...	{ 2nd Tenure of Musgrove
						Scholarship, with
						College Prize, £10,
						and Certificate of Honour.
H. B. LUARD, <i>Aveley, Essex</i>	...	...	...	...	...	Certificate of Honour.
T. A. DURRANT, <i>Kingston Hill</i>	...	...	...	...	...	Certificate of Honour.

PROSECTORS.

F. C. ABBOTT, <i>Gorleston</i>	...	...	...	...	...	Certificate of Honour.
T. P. COWEN, <i>Upper Holloway</i>	...	...	...	...	...	Certificate of Honour.
H. GERVIS, <i>Harley Street</i>	...	...	...	...	...	Certificate of Honour.
E. A. ROBERTS, <i>Birmingham</i>	...	...	...	...	...	Certificate of Honour.
P. C. THOMAS, <i>Chelsea</i>	...	...	...	...	...	Certificate of Honour.
H. G. TURNEY, <i>Camberwell Grove</i>	...	...	...	...	...	Certificate of Honour.

ASSISTANTS IN PHYSIOLOGICAL LABORATORY.

G. R. ANDERSON	...	...	...	...	...	...	...	Certificate of Honour.
H. C. BRISTOWE	...	...	...	...	...	...	...	Certificate of Honour.
E. D. Y. PODE	...	...	...	...	...	...	...	Certificate of Honour.
S. C. SKIPTON..	...	...	...	...	...	...	...	Certificate of Honour.

SOLLY MEDAL AND PRIZE.

E. SOLLY	Medal and Prize, £25.
----------	-----	-----	-----	-----	-----	-----	-----	-----------------------

PRACTICAL MEDICINE.

S. W. WHEATON	...	...	...	...	...	...	...	{ The Mead Medal, founded by Mr. & Mrs. NEWMAN SMITH. A Bronze Medal.
H. J. MACEVOY	..	...	...	...	...	...	...
H. P. HAWKINS	...	...	...	...	...	...	...	{ Special Mention and Certificate of Honour.

SURGERY AND SURGICAL ANATOMY.

J. H. TONKING	{ The Cheselden Medal, founded by the late GEORGE VAUGHAN, Esq. Special Mention and Certificate of Honour.
L. A. BIDWELL }	
E. C. STABB }	

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E. S. GOODY...	Certificate of Honour.
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F. D. CROWDY	Certificate of Honour.
H. CAMERON KIDD	Certificate of Honour.

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E. D. RITCHIE	Certificate of Honour.
F. D. CROWDY	Certificate of Honour.
H. CAMERON KIDD	Certificate of Honour.
E. S. GOODY...	...	...	...	...	...	...	...	Certificate of Honour.

FOR GENERAL PROFICIENCY AND GOOD CONDUCT.

H. J. SMYTH	{ The Treasurer's Gold Medal.
-------------	-----	-----	-----	-----	-----	-----	-----	----------------------------------

*THE FOLLOWING DISTINCTIONS HAVE BEEN OBTAINED
BY STUDENTS OF ST. THOMAS'S HOSPITAL DURING
THE PAST YEAR:—*

The Scholarship and Gold Medal in Medicine at the M.B. Degree, and the Gold Medal in Surgery at the B.S. Degree, of the University of London, by Mr. H. B. ROBINSON, who also took 1st Class Honours in Forensic Medicine.

A Radcliffe Travelling Fellowship of the University of Oxford, by Mr. H. P. HAWKINS.

The Murchison Scholarship in Clinical Medicine (1886), by Mr. J. S. HUTTON. Messrs. H. J. MACEVOY and S. W. WHEATON were bracketed equal for the second place.



THE MUSEUM OF HUMAN AND COMPARATIVE ANATOMY AND PATHOLOGY.

Curator.—S. G. SHATTOCK, Esq., F.R.C.S.

Among the earliest contributors to this Museum were Mr. CLINE, Sir A. COOPER, Mr. TRAVERS, and Mr. TYRRELL.

The Printed Catalogue of the Museum consists of three octavo volumes: in the first volume, edited by Mr. JOHN F. SOUTH, are described the preparations of Healthy Human, Microscopical, and Comparative Anatomy; and the 2nd and 3rd volumes, edited by Mr. SYDNEY JONES, contain descriptions of the specimens illustrative of Pathological Anatomy.

The COLLECTION of HUMAN ANATOMY consists of a Physiological and a Pathological Department: the former contains, besides wax models and casts, a large number of dissected Preparations, illustrating the Organs of Locomotion and Sense; the Nervous System; the Digestive, Respiratory, and Urinary Apparatus; the Vascular System, the Organs of Reproduction, and the tissues.

The Pathological Division is very rich, containing above 3000 Specimens, arranged in thirty-seven Sections, as follows:—

SECT.

- A. Injuries of Bone: Fractures.
- B. Injuries of Joints: Dislocations.
- C. Diseases of Bone.
- D. Diseases of Joints.
- E. Diseases of the Spinal Column.
- F. Injuries and Diseases of the Muscular System.
- G. Injuries and Diseases of the Eye.
- H. Injuries and Diseases of the Ear.
- I. Injuries and Diseases of the Nose, Antrum, &c.
- K. Injuries and Diseases of the Skin and Subcutaneous Cellular Tissue.
- L. Injuries of the Skull.
- M. Injuries of the Spine.
- N. Injuries and Diseases of the Nervous System.
- O. Injuries and Diseases of Mouth, Fauces, Pharynx, and the Œsophagus.
- P. Injuries and Diseases of the Stomach.
- Q. Injuries and Diseases of the Intestines and Peritoneum.
- R. Intussusception, Internal Strangulation, and Hernia.
- S. Injuries and Diseases of the Liver.
- T. Diseases of the Pancreas and Salivary Glands.
- U. Injuries and Diseases of the Spleen.
- V. Diseases of Thyroid, Thymus, and Suprarenal Capsules.

SECT.

- W. Injuries and Diseases of the Respiratory Apparatus.
- X. Injuries and Diseases of the Heart and Pericardium.
- Y. Injuries and Diseases of Arteries and Veins.
- Z. Diseases of Lymphatic and Lacteal Vessels and Glands.
- AA. Injuries and Diseases of the Kidneys, and Ureters.
- BB. Injuries and Diseases of the Bladder.
- CC. Diseases of the Prostate Gland and Vesiculæ Seminales, Urinary and Prostatic Calculi.
- DD. Injuries and Diseases of the Penis and Urethra.
- EE. Injuries and Diseases of the Testicles and Scrotum.
- FF. Diseases of the Ovaries and Fallopian Tubes.
- GG. Injuries and Diseases of the Uterus, Vagina, and external organs.
- HH. Diseases and displacements of the Ovum.
- II. Diseases of the Breast.
- KK. Tumours and other allied Morbid Growths.
- LL. Malformations.
- MM. Wax Models and Casts.

BONES, JOINTS, &c.—Amongst the specimens illustrating Injuries of Bones and Joints, are nearly all those described and figured in Sir A. Cooper's Treatise on 'Dislocations and Fractures of the Joints,' and in Cooper's and Travers's 'Surgical Essays.'

This section has been much enriched by Sir William MacCormac, who presented numerous specimens of gunshot injuries, chiefly fractures, obtained from cases under his care during the Franco-German War.

Sir A. Cooper's preparations, illustrating repair after fracture, are contained in this Section.

EYE.—This Section has been arranged by Mr. Dixon, and contains specimens described and figured by Sir A. Cooper, Mr. Travers, and Mr. Saunders.

SKIN.—Several Tumours are contained in this Section, as well as, amongst others, that horny growth, ten inches in length, removed from a man's forehead by Sir A. Cooper.

HEAD, SPINE, NERVOUS SYSTEM.—Showing all kinds of Injuries to the Skull; Spinal Injuries, which have been subjected to operation by Cline, Tyrrell, and South, as well as every variety, frequent and rare, of disease of the Nervous System.

INTESTINES AND PERITONEUM.—Travers's Preparations, illustrating 'The Process of Nature in repairing Injuries of the Intestines,' are contained in this Section. There are also Specimens illustrating the Morbid Anatomy of Fever, &c.

HERNIA.—This Section contains nearly all the Preparations figured and described in 'Cooper's Hernia.' Besides the more common varieties of Hernia, there are Specimens of Mesenteric, Mesocolic, Vesical, Thyroideal, Ischiatic, Perineal, and Phrenic Hernia.

LIVER.—Besides every variety of Hepatic Disease, this Section contains a large number of Biliary Calculi, many of which have been presented by Dr. Ord. Several specimens of Actinomyces are also contained in it.

RESPIRATORY AND VASCULAR SYSTEMS.—Amongst these Preparations are two Specimens, showing ligature of the Abdominal Aorta; one of them the case of Sir A. Cooper; the other that of Mr. John F. South. There are also Specimens of spontaneous obliteration of the Aorta.

The Preparations illustrative of Travers's experiments on Arteries and Veins are in the collection.

There are also very interesting Specimens of Diseased Heart, described by Dr. Wells and Dr. Elliotson.

KIDNEYS.—Described and arranged by Mr. Simon.

URINARY CALCULI.—250 in number—analysed by Mr. Heisch and Dr. Bernays.

TESTES.—Most of the preparations figured in Sir A. Cooper's work 'On the Testis,' are contained in this Section.

MALFORMATIONS.—This Section contains Specimens of Spina Bifida, Acephalous and double monsters, Ectopia Cordis, Malformations of the Heart, Urinary, and Generative Organs. Most of them have been elaborately described by Mr. R. D. Grainger, and the malformations of the heart are referred to by Dr. Farre and Dr. Peacock in their works. There are also very interesting specimens of malformation described by Dr. Bristowe, Mr. Le Gros Clark, and Mr. Sydney Jones.

The Museum contains a considerable number of valuable Ethnological Specimens.

THE MUSEUM OF COMPARATIVE ANATOMY contains about 1,000 Preparations, some of them very rare and valuable.

A large number of these Specimens were made by Sir A. Cooper, to illustrate his Lectures, when Professor of Comparative Anatomy to the Royal College of Surgeons.

THE CABINETS OF MICROSCOPICAL ANATOMY, which are under the charge of the Demonstrator of Practical Physiology, contain upwards of 2,000 injected and other Specimens of normal and morbid Histology, parasites, urinary deposits, &c. These include the Preparations made by Mr. Rainey, to illustrate the Histological Course of Lectures; and others described by him in Papers published in the Philosophical, Medico-Chirurgical, and Microscopical Transactions, and in various scientific works. This collection has been considerably enlarged by the addition of a series of specimens prepared by Dr. Acland, which includes the chief forms of micro-organisms found in diseased tissues, as well as specimens illustrating the development of the Chick. The specimens are available for use by students who wish to examine them, subject to such regulations as may be deemed necessary.

THE MATERIA MEDICA MUSEUM contains a complete collection of all the chemicals and organic substances included in the British Pharmacopœia of 1885; all these are named and numbered.

A second collection of all the chief medicinal substances is placed in drawers, so as to be available for the use of students.

A large and very fine collection of dried medicinal plants, named according to the latest nomenclature, is displayed on the walls of the Museum.

The Museum is under the conjoint superintendence of Dr. Stone and Mr. Shattock.

THE COLLECTION OF CHEMISTRY AND MINERALOGY is under the Superintendence of Dr. Bernays, who presented the larger part of the Specimens contained in it. It is displayed with the Collection of Materia Medica.

St. Thomas's Hospital.

MEDICAL AND PHYSICAL SOCIETY.

Hon. President, 1886-87.

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Vice-Presidents.

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This Society was originated in the early part of the present century by students of the Hospital, and has for its object the reading and discussion of papers on Medicine, Surgery, and subjects of General Interest, the narration of cases, and the exhibition of specimens of Physiological and Pathological interest. The Meetings are held in the Library on alternate Thursdays at 8.30 P.M., and terminate not later than 10 P.M.

The soirée, to which past and present students are invited, is usually held in December, in the Grand Entrance Hall and Corridor of the Hospital.

Further information can be obtained of the Hon. Secretaries.

ST. THOMAS'S HOSPITAL REPORTS.

VOL. XV., NEW SERIES,

EDITED BY

GEORGE GULLIVER, M.A., M.B. OXON., AND
H. H. CLUTTON, M.A. CANTAB., F.R.C.S.,

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# OCTOBER, 1886.

|    |    |                                                 |
|----|----|-------------------------------------------------|
| 1  | F  | Introductory Address, 3 P.M.    Annual Dinner.  |
| 2  | S  |                                                 |
| 3  | S  | Fifteenth Sunday after Trinity.                 |
| 4  | M  | Entrance Scholarships Exam., 4th, 5th, & 6th.   |
| 5  | TU |                                                 |
| 6  | W  | Clinical Clerks and Dressers commence duty.     |
| 7  | TH |                                                 |
| 8  | F  | Last day for Certs. for M.B. Exam., Univ. Lond. |
| 9  | S  |                                                 |
| 10 | S  | Sixteenth Sunday after Trinity.                 |
| 11 | M  |                                                 |
| 12 | TU |                                                 |
| 13 | W  |                                                 |
| 14 | TH |                                                 |
| 15 | F  |                                                 |
| 16 | S  |                                                 |
| 17 | S  | Seventeenth Sunday after Trinity.               |
| 18 | M  |                                                 |
| 19 | TU | St. Luke.                                       |
| 20 | W  |                                                 |
| 21 | TH |                                                 |
| 22 | F  |                                                 |
| 23 | S  |                                                 |
| 24 | S  | Eighteenth Sunday after Trinity.                |
| 25 | M  |                                                 |
| 26 | TU | Univ. Lond. M.B. Exam.                          |
| 27 | W  |                                                 |
| 28 | TH | St. Simon and St. Jude.                         |
| 29 | F  |                                                 |
| 30 | S  |                                                 |
| 31 | S  | Nineteenth Sunday after Trinity.                |

*The Hospital Entrance Science Scholarships Examination takes place during this month.*

*The Registration and Museum Committees meet during this month.*

*The Examinations of the Society of Apothecaries are held every Wednesday and Thursday.*

*First, Second, and Third Examinations of the Examining Board in England are held this month.*

# NOVEMBER, 1886.

|    |    |                                                        |
|----|----|--------------------------------------------------------|
| 1  | M  | All Saints.                                            |
| 2  | TU |                                                        |
| 3  | W  | Last day for applications for House offices, &c.*      |
| 4  | TH |                                                        |
| 5  | F  |                                                        |
| 6  | S  |                                                        |
| 7  | S  | Twentieth Sunday after Trinity.                        |
| 8  | M  | [applications for Medical and Surgical Registrarships. |
| 9  | TU | Prince of Wales b., 1841. Notice—30th, last day for    |
| 10 | W  | Meeting to appoint House Officers, &c.                 |
| 11 | TH |                                                        |
| 12 | F  |                                                        |
| 13 | S  |                                                        |
| 14 | S  | Twenty-first Sunday after Trinity.                     |
| 15 | M  |                                                        |
| 16 | TU | Univ. Lond. M.B. Pass list published.                  |
| 17 | W  | Univ. Lond. M.B. Honours Exam.                         |
| 18 | TH |                                                        |
| 19 | F  | [Lond.                                                 |
| 20 | S  | Last day for Certs. for M.D. and M.S. Exams., Univ.    |
| 21 | S  | Twenty-second Sunday after Trinity.                    |
| 22 | M  |                                                        |
| 23 | TU | Last day for Certs. for B.S. Exam., Univ. Lond.        |
| 24 | W  |                                                        |
| 25 | TH |                                                        |
| 26 | F  |                                                        |
| 27 | S  |                                                        |
| 28 | S  | Advent Sunday.                                         |
| 29 | M  | [and Surgical Registrarships.                          |
| 30 | TU | Saint Andrew. Last day for applications for Medical    |

\* Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.



DECEMBER, 1886.

|    |    |                                                                                                  |
|----|----|--------------------------------------------------------------------------------------------------|
| 1  | W  | Last day for applications for Clinical Clerkships and<br>[Dresserships.                          |
| 2  | TH |                                                                                                  |
| 3  | F  |                                                                                                  |
| 4  | S  |                                                                                                  |
| 5  | S  | Second Sunday in Advent.                                                                         |
| 6  | M  | Univ. Lond. M.D. and M.S. Exam. [B.S. Exam.                                                      |
| 7  | TU | House Officers, &c., commence duty. Univ. Lond.                                                  |
| 8  | W  | Meeting to appoint Clinical Clerks and Dressers.                                                 |
| 9  | TH |                                                                                                  |
| 10 | F  | Last day for Certs. for Matric. Univ. Lond.                                                      |
| 11 | S  |                                                                                                  |
| 12 | S  | Third Sunday in Advent.                                                                          |
| 13 | M  |                                                                                                  |
| 14 | TU |                                                                                                  |
| 15 | W  |                                                                                                  |
| 16 | TH | 1st Sessional Examination commences.                                                             |
| 17 | F  | Univ. Lond. M.D. List published. Last day for Notice<br>[for Prel. Sci. (M.B.) Exam. Univ. Lond. |
| 18 | S  |                                                                                                  |
| 19 | S  | Fourth Sunday in Advent.                                                                         |
| 20 | M  |                                                                                                  |
| 21 | TU | Saint Thomas.                                                                                    |
| 22 | W  |                                                                                                  |
| 23 | TH |                                                                                                  |
| 24 | F  |                                                                                                  |
| 25 | S  | CHRISTMAS DAY.                                                                                   |
| 26 | S  | First Sunday after Christmas. Saint Stephen.                                                     |
| 27 | M  | Saint John.                                                                                      |
| 28 | TU | Holy Innocents.                                                                                  |
| 29 | W  |                                                                                                  |
| 30 | TH |                                                                                                  |
| 31 | F  |                                                                                                  |

*University of Cambridge First, Second, and Third M.B. Examinations are held this month.*

# JANUARY, 1887.

|    |    |                                                |
|----|----|------------------------------------------------|
| 1  | S  | Circumcision.                                  |
| 2  | S  | Second Sunday after Christmas.                 |
| 3  | M  |                                                |
| 4  | TU | Clinical Clerks and Dressers commence duty.    |
| 5  | W  |                                                |
| 6  | TH | Epiphany.                                      |
| 7  | F  |                                                |
| 8  | S  |                                                |
| 9  | S  | First Sunday after Epiphany.                   |
| 10 | M  | Univ. Lond. Matriculation Examination.         |
| 11 | TU |                                                |
| 12 | W  |                                                |
| 13 | TH |                                                |
| 14 | F  |                                                |
| 15 | S  |                                                |
| 16 | S  | Second Sunday after Epiphany.                  |
| 17 | M  | Univ. Lond. Prelim. Scientific (M.B.) Exam.    |
| 18 | TU |                                                |
| 19 | W  |                                                |
| 20 | TH |                                                |
| 21 | F  |                                                |
| 22 | S  |                                                |
| 23 | S  | Third Sunday after Epiphany.                   |
| 24 | M  |                                                |
| 25 | TU | Conversion of St. Paul.                        |
| 26 | W  |                                                |
| 27 | TH |                                                |
| 28 | F  |                                                |
| 29 | S  |                                                |
| 30 | S  | Fourth Sunday after Epiphany.                  |
| 31 | M  | Univ. Lond. Matriculation Pass List published. |

*First, Second, and Third Examinations of the Examining Board in England are held this month.*

*The Registration and Museum Committees meet during this month.*

*Preliminary Examination in Arts of Apothecaries' Society held this month.*

# FEBRUARY, 1887.

|    |    |                                                    |
|----|----|----------------------------------------------------|
| 1  | TU |                                                    |
| 2  | W  | Last day for applications for House Offices, &c.*  |
| 3  | TH |                                                    |
| 4  | F  |                                                    |
| 5  | S  |                                                    |
| 6  | S  | Septuagesima Sunday.                               |
| 7  | M  | Univ. Lond. Classified Matric. List published.     |
| 8  | TU | [Prel. Sci. (M.B.) List published.                 |
| 9  | W  | Meeting to appoint House Officers, &c. Univ. Lond. |
| 10 | TH | Queen Victoria married, 1840.                      |
| 11 | F  |                                                    |
| 12 | S  |                                                    |
| 13 | S  | Sexagesima Sunday.                                 |
| 14 | M  |                                                    |
| 15 | TU |                                                    |
| 16 | W  |                                                    |
| 17 | TH |                                                    |
| 18 | F  |                                                    |
| 19 | S  |                                                    |
| 20 | S  | Quinquagesima Sunday.                              |
| 21 | M  |                                                    |
| 22 | TU |                                                    |
| 23 | W  | Ash Wednesday.                                     |
| 24 | TH | St. Matthias.                                      |
| 25 | F  |                                                    |
| 26 | S  |                                                    |
| 27 | S  | First Sunday in Lent.                              |
| 28 | M  |                                                    |

\* Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.



# MARCH, 1887.

|    |    |                                                                                         |
|----|----|-----------------------------------------------------------------------------------------|
| 1  | TU | House Officers, &c., commence duty.                                                     |
| 2  | W  | Last day for applications for Clinical Clerkships and<br>[Dresserships.]                |
| 3  | TH |                                                                                         |
| 4  | F  |                                                                                         |
| 5  | S  |                                                                                         |
| 6  | S  | Second Sunday in Lent.                                                                  |
| 7  | M  |                                                                                         |
| 8  | TU |                                                                                         |
| 9  | W  | Meeting to appoint Clinical Clerks and Dressers.                                        |
| 10 | TH | Prince of Wales married, 1863.                                                          |
| 11 | F  |                                                                                         |
| 12 | S  |                                                                                         |
| 13 | S  | Third Sunday in Lent.                                                                   |
| 14 | M  |                                                                                         |
| 15 | TU |                                                                                         |
| 16 | W  |                                                                                         |
| 17 | TH |                                                                                         |
| 18 | F  |                                                                                         |
| 19 | S  |                                                                                         |
| 20 | S  | Fourth Sunday in Lent.                                                                  |
| 21 | M  | Sessional Examination commences.                                                        |
| 22 | TU |                                                                                         |
| 23 | W  |                                                                                         |
| 24 | TH |                                                                                         |
| 25 | F  | Annunciation. Lady Day.                                                                 |
| 26 | S  |                                                                                         |
| 27 | S  | Fifth Sunday in Lent.                                                                   |
| 28 | M  |                                                                                         |
| 29 | TU |                                                                                         |
| 30 | W  |                                                                                         |
| 31 | TH | Registrar's Report for last year due. Last day for<br>[Reports for Solly Medal (1888).] |

# APRIL, 1887.

1

F

2

S

3

S

Palm Sunday.

4

M

5

TU

Clinical Clerks and Dressers commence duty.

6

W

7

TH

8

F

Good Friday.

9

S

10

S

EASTER SUNDAY.

11

M

Bank Holiday.

12

TU

13

W

14

TH

15

F

16

S

17

S

First Sunday after Easter.

18

M

19

TU

20

W

21

TH

22

F

23

S

24

S

Second Sunday after Easter.

25

M

St. Mark.

26

TU

27

W

28

Th

29

F

30

S

*First, Second, and Third Examinations of the Examining Board in England are held this month.*

*The Examinations for the Mead and Cheselden Medals take place this month.*

*The Annual Inspection of the Museum and meeting of Museum Committee take place during this month.*

*The Registration Committee meets during this month.*

*Preliminary Examination in Arts of Apothecaries' Society held this month.*

# MAY, 1887.

|    |    |                                                      |
|----|----|------------------------------------------------------|
| 1  | §  | Third Sunday after Easter. St. Philip and St. James. |
| 2  | M  | Summer Session commences.                            |
| 3  | TU |                                                      |
| 4  | W  | Last day for applications for House Offices, &c.*    |
| 5  | TH |                                                      |
| 6  | F  |                                                      |
| 7  | S  |                                                      |
| 8  | §  | Fourth Sunday after Easter.                          |
| 9  | M  |                                                      |
| 10 | TU |                                                      |
| 11 | W  | Meeting to appoint House Officers, &c.               |
| 12 | TH | First Stone of St. Thomas's New Hospital laid by     |
| 13 | F  | [H.M. the Queen, 1868.                               |
| 14 | S  |                                                      |
| 15 | §  | Fifth Sunday after Easter. Rogation Sunday.          |
| 16 | M  |                                                      |
| 17 | TU |                                                      |
| 18 | W  |                                                      |
| 19 | TH | Ascension Day.                                       |
| 20 | F  | Last day for Certs. for Matric. Univ. Lond.          |
| 21 | S  |                                                      |
| 22 | §  | Sunday after Ascension Day.                          |
| 23 | M  |                                                      |
| 24 | TU | Queen Victoria born, 1819.                           |
| 25 | W  |                                                      |
| 26 | TH |                                                      |
| 27 | F  |                                                      |
| 28 | S  |                                                      |
| 29 | §  | WHIT SUNDAY.                                         |
| 30 | M  | Bank Holiday. No Lectures.                           |
| 31 | TU |                                                      |

*Univ. Camb. Third M.B. Exam. held this month.*

\* Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.



# JUNE, 1887.

|    |    |                                                                          |
|----|----|--------------------------------------------------------------------------|
| 1  | W  | Last day for applications for Clinical Clerkships and<br>[Dresserships.] |
| 2  | TH |                                                                          |
| 3  | F  |                                                                          |
| 4  | S  |                                                                          |
| 6  | S  | Trinity Sunday.                                                          |
| 5  | M  |                                                                          |
| 7  | TU | House Officers, &c., commence duty.                                      |
| 8  | W  | Meeting to appoint Clinical Clerks and Dressers.                         |
| 9  | TH |                                                                          |
| 10 | F  |                                                                          |
| 11 | S  | St. Barnabas.                                                            |
| 12 | S  | First Sunday after Trinity.                                              |
| 13 | M  |                                                                          |
| 14 | TU |                                                                          |
| 15 | W  |                                                                          |
| 16 | TH |                                                                          |
| 17 | F  |                                                                          |
| 18 | S  | Last day for notice for Prel. Sci. (M.B.) Exam. Univ.<br>[Lond.]         |
| 19 | S  | Second Sunday after Trinity.                                             |
| 20 | M  | Queen's Accession. Univ. Lond. Matric. Exam.                             |
| 21 | TU | New St. Thomas's Hospital opened by H. M. the<br>[Queen, 1871.]          |
| 22 | W  |                                                                          |
| 23 | TH |                                                                          |
| 24 | F  | Midsummer Day. St. John Baptist.                                         |
| 25 | S  |                                                                          |
| 26 | S  | Third Sunday after Trinity.                                              |
| 27 | M  |                                                                          |
| 28 | TU | Queen Victoria crowned, 1838.                                            |
| 29 | W  | St. Peter.                                                               |
| 30 | TH |                                                                          |

*The Harveian Oration is delivered at the Royal College of Physicians annually in the month of June.*

*Doctor of Science Examination at London University takes place within the first 21 days of June.*

*Distribution of Prizes for past Sessions during this month.*

*Univ. Camb. First and Second M.B. Examinations are held within the first 14 days of June.*

# JULY, 1887.

|    |    |                                                        |
|----|----|--------------------------------------------------------|
| 1  | F  |                                                        |
| 2  | S  |                                                        |
| 3  | S  | Fourth Sunday after Trinity.                           |
| 4  | M  |                                                        |
| 5  | TU | Clinical Clerks and Dressers commence duty.            |
| 6  | W  | Last day for applications for House Offices, &c., for  |
| 7  | TH | [September.*]                                          |
| 8  | F  |                                                        |
| 9  | S  | Last day for Certs. for Int. Med. Exam. Univ. Lond.    |
| 10 | S  | Fifth Sunday after Trinity.                            |
| 11 | M  | Univ. Lond. Pass Matric. List published.               |
| 12 | TU |                                                        |
| 13 | W  | Meeting to appoint House Officers, &c., for September. |
| 14 | TH |                                                        |
| 15 | F  |                                                        |
| 16 | S  |                                                        |
| 17 | S  | Sixth Sunday after Trinity.                            |
| 18 | M  | Univ. Lond. Prelim. Scientific (M.B.) Exam. Classi-    |
| 19 | TU | [fied Matric. List published.                          |
| 20 | W  |                                                        |
| 21 | TH |                                                        |
| 22 | F  |                                                        |
| 23 | S  |                                                        |
| 24 | S  | Seventh Sunday after Trinity.                          |
| 25 | M  | St. James. Sessional Examination commences. Univ.      |
| 26 | TU | [Lond. Int. Med. Ex.                                   |
| 27 | W  |                                                        |
| 28 | TH |                                                        |
| 29 | F  |                                                        |
| 30 | S  |                                                        |
| 31 | S  | Eighth Sunday after Trinity.                           |

*First, Second, and Third Examinations of the Examining Board in England are held this month.*

*The Registration and Museum Committees meet during this month.*

*\* Applications for these appointments to be made to the Medical Secretary, by letter, stating the Candidate's qualifications, the offices which he has previously held in the Hospital, and the number of Maternity Cases attended.*

# AUGUST, 1887.

|    |    |                                |
|----|----|--------------------------------|
| 1  | M  | Bank Holiday.                  |
| 2  | TU |                                |
| 3  | W  |                                |
| 4  | TH |                                |
| 5  | F  |                                |
| 6  | S  |                                |
| 7  | S  | Ninth Sunday after Trinity.    |
| 8  | M  |                                |
| 9  | TU |                                |
| 10 | W  |                                |
| 11 | TH |                                |
| 12 | F  |                                |
| 13 | S  | Tenth Sunday after Trinity.    |
| 14 | S  |                                |
| 15 | M  |                                |
| 16 | TU |                                |
| 17 | W  |                                |
| 18 | TH |                                |
| 19 | F  |                                |
| 20 | S  |                                |
| 21 | S  | Eleventh Sunday after Trinity. |
| 22 | M  |                                |
| 23 | TU | St. Bartholomew.               |
| 24 | W  |                                |
| 25 | TH |                                |
| 26 | F  |                                |
| 27 | S  |                                |
| 28 | S  | Twelfth Sunday after Trinity.  |
| 29 | M  |                                |
| 30 | TU |                                |
| 31 | W  |                                |



# SEPTEMBER, 1887.

|    |    |                                                       |
|----|----|-------------------------------------------------------|
| 1  | TH |                                                       |
| 2  | F  |                                                       |
| 3  | S  |                                                       |
| 4  | S  | Thirteenth Sunday after Trinity.                      |
| 5  | M  |                                                       |
| 6  | TU | House Officers, &c., commence duty. [Dresserships.    |
| 7  | W  | Last day for applications for Clinical Clerkships and |
| 8  | TH |                                                       |
| 9  | F  |                                                       |
| 10 | S  |                                                       |
| 11 | S  | Fourteenth Sunday after Trinity.                      |
| 12 | M  |                                                       |
| 13 | TU |                                                       |
| 14 | W  |                                                       |
| 15 | TH |                                                       |
| 16 | F  |                                                       |
| 17 | S  |                                                       |
| 18 | S  | Fifteenth Sunday after Trinity.                       |
| 19 | M  |                                                       |
| 20 | TU |                                                       |
| 21 | W  | St. Matthew. Meeting to appoint Clinical Clerks and   |
| 22 | TH | [Dressers.                                            |
| 23 | F  |                                                       |
| 24 | S  |                                                       |
| 25 | S  | Sixteenth Sunday after Trinity.                       |
| 26 | M  |                                                       |
| 27 | TU |                                                       |
| 28 | W  |                                                       |
| 29 | TH | Michaelmas Day.                                       |
| 30 | F  | Last day for Essay for Grainger Prize.                |

*Preliminary Examination in Arts of Apothecaries' Society held this month.*

# LIST OF STUDENTS

WHO HAVE OBTAINED

## Honours in the Annual Examinations.

*w refers to Winter and s to Summer Session.*

*The Addresses are those given at the time of Entry.*

### ABBOTT (F. C.), Gorleston.

w 1884-5, 1st Year Student, 1st Entrance Science Scholarship. The Wm. Tite Scholarship.

s 1885. 1st Year Student, 1st Coll. Prize.

w 1885-6. 2nd Year Student, The Peacock Scholarship.

### ACLAND (T. D.),\* Oxford.

w 1877-8. 3rd Year Physical Society's Prize. Paper published in Hospital Reports, Vol. VIII.

w 1878-9. 4th Year Student. The Mead Medal.

### ADDY (B.), West Deeping, Lincolnshire.

1869. 1st Year Student, 1st College Prize; Physical Society's 1st Year's Prize.

1870. 2nd Year Student, 1st Coll. Prize; Physical Society's 2nd Year's Prize.

1871. 3rd Year Student, 1st Coll. Prize; Prosector's Prize; Treasurer's Gold Medal.

### ALLINGHAM (W.),† Bermondsey.

1852. Descriptive Anatomy, Hon. Cert.; Chemistry, Hon. Cert.

1853. Midwifery, Hon. Cert.

1854. Medicine, Hon. Cert.; Descriptive Anatomy, Prize; Midwifery, Hon. Cert.; Physical Society's Essay, Prize; Surgery, Prize; Physiology, Hon. Cert.

1855. Medicine, Prize; Descriptive Anatomy, Hon. Cert.; Physiology, Hon. Cert.; Clinical Medicine, President's Prize; Clinical Medicine, Treasurer's Prize.

### ANDERSON (W.),‡ Clapham, Surrey.

1865. 1st Year Student, 3rd Coll. Prize.

1866. 2nd Year Student, 3rd Coll. Prize.

1867. 3rd Year Student, 1st Coll. Prize; Physical Society's 3rd Year's Prize; Cheselden Medal.

\* Demonstrator of Minute Pathology at St. Thomas's Hospital. Assistant Physician, Brompton Hospital.

† Late Surgical Tutor, Surgeon to Great Northern Hospital, Surgeon to St. Mark's Hospital.

‡ Assistant Surgeon to, and Joint Lecturer on Anatomy at, St. Thomas's Hospital. Member of the Board of Examiners for the Fellowship of the Royal College of Surgeons;

### ARMSTRONG (H. G.), Reading.

s 1872. 1st Year Student, Hon. Cert.

w 1874. 3rd Year Student, 3rd Coll. Prize.

### ATKINSON (F. P.), Kew.

1861. 1st Year Matriculation Examination—Classics and Mathematics, Hon. Cert.

### ATKINSON (J.), Kirkby-Lonsdale.

1853. Chemistry, Hon. Cert.

### AVELING (C. T.), Shacklewell.

1863. Matriculation Examination—Physics and Natural History, 1st College Prize;

1st Year Student, 1st College Prize.

1864. 2nd Year Student, 2nd College Prize.

1865. 3rd Year Student, 3rd College Prize.

### BAILEY (J. H. T.), Greenwich.

1843. Materia Medica, Hon. Cert.

### BAIN (J.)

1855. Midwifery, Hon. Cert.

### BALLANCE (C. A.),§ Lower Clapton.

w 1875-6. 1st Year Student, Hon. Cert.

w 1876-7. 3rd Year Student, 3rd College Prize, and Physical Society's 3rd Year's Prize;

1880. The Solly Medal and Prize.

### BARKER (F. R.), Aldershot.

w 1875. Prosector's Prize.

### BARRON (H. J.), Guilford Street, Russell Square.

w 1877-8. 2nd Year Student, Prosector's Prize

### BARWELL (R.),|| Norwich.

1847. Medicine, Hon. Cert.;

Midwifery, Hon. Cert.

1848. Physical Society's Essay, Treasurer's Prize;

Physiology and Anatomy, Hon. Cert.;

Midwifery, Hon. Cert.;

Dresser's Surg. Repts., Hon. Cert.

1850. Clinical Medicine, Prize.

### BATESON (J. M.), Kirkby-Lonsdale.

1855. Chemistry, Hon. Cert.

formerly Demonstrator of Anatomy, and Surgical Registrar at St. Thomas's Hospital, late Examiner in Anatomy, Royal College of Physicians, Medical Officer to H.B.M. Legation in Japan, and Professor of Medical Sciences at the Japanese Naval Medical College, Tokio.

§ Assistant Surgeon to the West London Hospital. Demonstrator of Anatomy at St. Thomas's Hospital.

|| Surgeon to Charing Cross Hospital.

- BATTLE (W. H.),\*** Hanworth, Lincolnshire.  
s 1874. Hon. Cert.  
w 1875. 2nd Year Student, 3rd College Prize.  
w 1876-7. 3rd Year Student, The First Solly Medal and Prize.
- BEAL (P.),** Plymouth.  
1844. Chemistry, 2nd Prize.
- BEARDSLEY (A.),** Shipley, Derby.  
1843. Midwifery, 2nd Prize.
- BEDFORD (R. J.),†** Sleaford.  
1858. Midwifery, Hon. Cert.
- BENWELL (H. D.),** Greenwich.  
1843. Chemistry, 2nd Prize.  
1845. Physiology and Anatomy, Medal.  
1847. Clinical Medical Reports, Prize;  
Gen. Proficiency, Trea. Medal.
- BELL (C. N.),** Rochester.  
1867. 3rd Year Student, 3rd Coll. Prize.
- BELL (J. V.),** Rochester.  
1859. 1st Year Student, Treasurer's 2nd Prize; Matriculation Examination—Classics and Mathematics, Hon. Cert.  
1860. 2nd Year Student, Hon. Cert.  
1861. 3rd Year Student, 3rd Coll. Prize.
- BERNAYS (H. L.),** Chatham.  
w 1873. Prosector's Prize.
- BERNAYS (A. V.),** Great Stanmore.  
s 1876. 1st Year Student, Hon. Cert.  
w 1880-81. 3rd Year Student, 1st Coll. Prize.
- BICKLE (L. W.),** St. Leonard's-on-Sea.  
s 1878. 1st Year Student, 3rd Coll. Prize;  
s 1879. 2nd Year Student, 1st Coll. Prize.
- BIDDLE (D.),** Wotton-under-Edge.  
1860. 1st Year Student, Trea. Prize;  
Matriculation Exam.—Prize.  
1861. 2nd Year Student, Hon. Cert.  
1862. 3rd Year Student, Hon. Cert.
- BIDWELL (H.),** Ely.  
w 1883-4. 4th Year Student, qualified for Mead Medal.
- BIDWELL (L. A.),** Lee.  
w 1885-6. 4th Year Student, qualified for Cheselden Medal.
- BIRTWELL (H. H.),** Enfield, Lancashire.  
1865. 3rd Year Student, Hon. Cert.
- BLACK (J.),** Kentish Town.  
w 1872. 2nd Year Student, Prosector's Prize.
- BLACK (W. S.),** Chesterfield, Derby.  
1855. Midwifery, Hon. Cert.;  
Medicine, Hon. Cert.
- BLACKETT (W. C.),** Durham.  
1851. Descriptive Anatomy, Hon. Cert.
- BLADES (C. C.)**  
1855. Midwifery, Hon. Cert.
- BONE (W.),** Camberwell.  
1857. 1st Year Student, Trea. 1st Prize.  
1858. 2nd Year Student, Trea. 1st Prize.
- BONSER (J. H.),** Sutton-in-Ashfield.  
1871. 3rd Year Student, 2nd Coll. Prize;  
Cheselden Medal.
- BOULGER (J.),** Gravesend.  
1870. 1st Year Student, Sir Wm. Tite's Scholarship.  
1871. 2nd Year, Sir W. Tite's Scholarship.  
w 1872. 3rd Year, Sir W. Tite's Scholarship.
- Box (C. R.),** Camberwell.  
w 1885-6. 1st Year Student, 2nd Coll. Prize.
- BOWEN (E.),** Llyn Gwair, Pembroke.  
1847. Descriptive and Surgical Anatomy, Hon. Cert.;  
Materia Medica, Hon. Cert.  
1848. Descriptive and Surgical Anatomy, Hon. Cert.;  
Physiology and Anatomy, Hon. Cert.;  
Botany, Hon. Cert.;  
Comparative Anatomy, Hon. Cert.
- BOWN (J. Y.),** America.  
1848. Descriptive and Surgical Anatomy, Hon. Cert.
- BRAKE (J.),** Holt, Wilts.  
1851. Matriculation Scholarship, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
1st Year Student, Scholarship;  
Chemistry, Hon. Cert.  
1852. 2nd Year Student, Scholarship;  
Physiology, Prize;  
Materia Medica, Hon. Cert.  
Botany, Hon. Cert.;  
Medicine, Hon. Cert.  
1853. 3rd Year Student, Scholarship;  
Clinical Medicine, Trea. Prize;  
Midwifery, Prize;  
Forensic Medicine, Prize.
- BRISTOWE (J. S.),‡** Camberwell.  
1847. Medicine, Hon. Cert.;  
Physiology and Anatomy, Hon. Cert.;  
Descriptive and Surgical Anatomy Prize.  
1848. Descriptive and Surgical Anatomy Hon. Cert.;  
Physiology and Anatomy, Prize;  
Practical Chemistry, Prize;  
Botany, Prize;  
Midwifery, Hon. Cert.;  
Comparative Anatomy, Prize;  
Surgery, Prize;  
General Proficiency, Treasurer's Medal.
- BRITTON (T.),** Doncaster.  
1861. 1st Year Student, Hon. Cert.
- BROCK (J.),** Northwich.  
w 1872. 1st Year Student, 2nd Coll. Prize.  
s 1872. Hon. Cert.
- BROCKATT (A. A.),** Denmark Hill.  
w 1884-5. 4th Year Student, qualified for the Mead Medal.
- BROWN (F. G.),** London.  
1860. 1st Year Student, Hon. Cert.  
1861. 2nd Year Student, 3rd Coll. Prize.  
1862. 3rd Year Student, 3rd Coll. Prize.
- BROWN (G. D.),** Croydon.  
1851. Physiology, Hon. Cert.;

\* Resident Assistant Surgeon to St. Thomas's Hospital, late Surgical Registrar.  
† Late Assistant-Surgeon at the "Dreadnought" Hospital Ship.

‡ Physician to, and Joint Lecturer on Medicine at, St. Thomas's Hospital. Late Lecturer on General Pathology.



- Botany, Prize;  
Surgery, Hon. Cert.;  
1852. Physiology, Hon. Cert.;  
Physical Society's Essay, Treasurer's Prize;  
Medicine, Hon. Cert.;  
Pathology, Prize.

**BROWN (T. J. E.), Dorchester.**

1848. Practical Midwifery, Hon. Cert.

**BUCKNILL (E. R.), Bedford.**

1855. 1st Year Student, Scholarship;  
Midwifery, Hon. Cert.;  
Chemistry, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
Materia Medica, Hon. Cert.

**BULL (J.), Norwood, Surrey.**

1848. Midwifery, Hon. Cert.

**BUTLER (W.), Stoke Newington.**

1845. Materia Medica, Hon. Cert.

**CAIGER (F. F.), Gloucester-st., S.W.**

- w 1879-80. 1st Year Student, 3rd Coll. Prize.  
w 1880-81. 2nd Year Student, 3rd Coll. Prize.  
w 1882-83. 4th Year, the Mead Medal.

**CANN (R. T.), Plymouth.**

- s 1882. 2nd Year Student. 1st Coll. Prize.  
s. 1883. 3rd Year Student. 2nd Coll. Prize.

**CARPENTER (A.)\* Rothwell.**

1848. Descriptive and Surgical Anatomy, Hon. Cert.;  
Chemistry Prize;  
Materia Medica, Hon. Cert.;  
Matriculation Scholarship, Prize.  
1849. Physiology Hon. Cert.;  
Midwifery, Hon. Cert.;  
Descriptive Anatomy, 1st Prize;  
Medicine, 2nd Prize.  
1850. Physiology, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
Botany, Prize;  
Medicine, Prize;  
Surgery, Prize; [Medal.  
General Proficiency, Treasurer's  
1851. (Accoucheur) Midwifery, Prize;  
Essay on Chorea, Mr. N. Smith's Prize.  
1852. Surgical Reports, President's Prize;  
Medical Reports, Dr. Roots' Prize;  
Ophthalmic Reports, a Governor's Prize;  
Clinical Medicine, Senior Prize.

**CARPENTER (A. B.), Croydon.**

- w 1876-7. 1st Year Student, Hon. Cert.;

**CARPENTER (G. A.), Streatham.**

- w. 1880-81. 1st Year Student, 3rd Coll. Prize.  
s 1881. 1st Coll. Prize.  
w 1881-2. 2nd Year Student, 3rd Coll. Prize.  
Prosecutor's Prize.

**CARR (J. T.), Bombay.**

1844. Surgery, Prize.

**CASTLE (H.), Newport, I. of Wight.**

- w 1874-5. 1st Year Student, 2nd Coll. Prize.  
s 1875. 3rd College Prize.  
w 1876-7. Physical Society's 3rd Year's Prize.

**CAUDLE (A. W. W.), Henfield, Sussex.**

1858. Clinical Medicine, Prize.

**CHALDECOTT (C. W.), Dorking.**

1849. Descriptive Anatomy, Hon. Cert.;

- Chemistry, Hon. Cert.;  
Materia Medica, 2nd Prize;  
1st Year Student, Scholarship.

1859. Physiology, Hon. Cert.  
Surgery, Prize.

1851. Physiology, Prize;  
Descriptive Anatomy, Hon. Cert.;  
Medicine, Hon. Cert.;  
Physical Society's Essay, Treasurer's Prize;  
Surgery, Hon. Cert.;  
General Proficiency, Treasurer's Silver Medal.

**CHALDECOTT (T. A.), Newington.**

1848. Descriptive Surgical Anatomy, Hon. Cert.;  
Chemistry, Hon. Cert.; [Cert.;  
Botany, Hon. Cert.;  
Materia Medica, Hon. Cert.  
Comparative Anat., Hon. Cert.;  
Matriculation Scholarship, Prize  
Practical Chemistry Hon. Cert.  
1849. Physiology, Hon. Cert.;  
Midwifery, Hon. Cert.;  
Surgery, 2nd Prize;  
Medicine, Hon. Cert.  
1850. Physiology, Hon. Cert.;  
Forensic Medicine, Prize;  
Pathology, Prize;  
Medicine, Hon. Cert.;  
Surgery, Hon. Cert.

**CHAPMAN (C. E.), Preston.**

1855. Midwifery, Hon. Cert.;  
Materia Medica, Hon. Cert.  
1857. Clinical Assistant, Prize;  
Physical Society's Essay, Prize.

**CHARPENTIER (A. E.).**

- 1882-3. 4th Year, The Mead Medal Exam.,  
Special Mention and Hon. Cert.

**CHERRY (A. H.), Clapham.**

1845. Clinical Medicine, Hon. Cert.

**CHIPPERFIELD (W. N.), Reading.**

1852. 1st Year Student, Scholarship;  
Descriptive Anatomy, Prize.  
1853. 2nd Year Student, Scholarship.  
Physiology, Prize;  
Descriptive Anatomy, Prize;  
Midwifery, Prize;  
Physical Society's Essay, Prize;  
Medicine, Prize;  
Surgery, Prize.  
1854. 3rd Year Student, Scholarship.  
Medicine, Prize;  
Descriptive Anatomy, Hon. Cert.  
Midwifery, Prize;  
Physical Society's Essay, Treasurer's Prize;  
Forensic Medicine, Prize;  
Chemistry, Hon. Cert.;  
Comparative Anatomy, Prize;  
Pathology, Prize;  
Surgery and Surgical Anatomy  
Cheselden Medal;  
Clinical Medicine, Treasurer's Prize  
Physiology, Prize; [Medal.  
General Proficiency, Treasurer's

**CLAPTON (E.),† Stamford.**

1851. Matriculation Scholarship, Hon. Cert.  
1st Year Student, 1st Scholarship;  
Descriptive Anatomy, Prize;  
Chemistry, Prize.

\* Late Lecturer on State Medicine at St. Thomas's Hospital.

† Late Physician to, and Lecturer on Materia Medica at, St. Thomas's Hospital. Physician to the Magdalen Hospital.

1852. 2nd Year Student, Scholarship ;  
Physiology, Prize ;  
Materia Medica, Prize ;  
Botany, Prize ;  
Medicine, Hon. Cert.
1853. 3rd Year Student, Scholarship ;  
Physiology, Hon. Cert. ; [Prize ;  
Clinical Medicine, Treasurer's  
Midwifery, Hon. Cert. ;  
Physical Society's Essay, Treasurer's Prize ;  
Medicine, Hon. Cert.  
Forensic Medicine, Hon. Cert. ;  
Chemistry, Hon. Cert. ;  
Surgery, Hon. Cert. ;
1854. Ophthalmic Reports, Governor's Prize ;  
Clinical Medicine, Mr. N. Smith's Prize.
- CLAPTON (W.), Stamford.**  
1855. Midwifery, Hon. Cert. ;  
Descriptive Anatomy, Hon. Cert. ;  
Materia Medica, Prize.  
1856. Clinical Medicine, Prize.  
1858. Midwifery, Hon. Cert.
- CLARKE (A.), Dorking.**  
1856. 1st Year Student, Treasurer's 2nd Prize.
- CLARK (J. H.), Jamaica.**  
1867. 2nd Year Student, Physical Society's 2nd Year's Prize.
- CLARKSON (J. W.), Surbiton.**  
w 1872. 2nd Year Student, 3rd Coll. Prize.  
w 1873. 3rd Year Student, 2nd Coll. Prize ;  
Surgery and Surgical Anatomy, Hon. Cert.
- CLEGHORN (G.), Bedford.**  
1872. 3rd Year Student, Hon. Cert.
- COGGINS (T.), Hayford, Woodstock.**  
1847. Chemistry, Hon. Cert.  
1848. Descriptive and Surgical Anatomy, Hon. Cert. ;  
Midwifery, Hon. Cert.  
1849. Midwifery, Hon. Cert. ;  
Medicine, Hon. Cert.  
1850. Surgical Reports, Prize ;  
(Accoucheur) Midwifery, Hon. Cert.
- COLBY (W. T.), Malton, York.**  
1849. Descriptive Anatomy, Hon. Cert. ;  
Midwifery, Hon. Cert.
- COLLIER (T. P.), Worship Square.**  
1847. Practical Midwifery, Prize.
- COMPLIN (E. J.), Charterhouse Sq.**  
1851. Clinical Medicine, Prize ;  
Medical Cases, President's Prize ;  
Surgery, Hon. Cert.  
1852. Midwifery, Hon. Cert. ;  
Pathology, Hon. Cert.
- COOK (S. B.), Cape of Good Hope.**  
s 1883. 1st year Student, 2nd Coll. Prize.
- COOK (W.), Gainsboro'.**  
1844. Chemistry, Hon. Cert. ;  
Materia Medica, Hon. Cert.
- COOKE (C. W.), Regent's Park.**  
w 1883-4. 1st year Student, 1st Entrance Science Scholarship.
- COOKE (J.), Stamford.**  
1855. Comparative Anatomy, Prize ;  
Midwifery, Hon. Cert. ;  
Physiology, Hon. Cert.
- CORY (R.),\* Carlisle.**  
1870. Physical Society's 3rd Year's Prize.
- COUSINS (J. W.), Portsea.**  
1864. Descriptive Anatomy, Hon. Cert. ;  
Chemistry, Hon. Cert.  
1855. Surgery, Prize ;  
Midwifery, Prize ;  
Midwifery, Hon. Cert.  
1856. Clinical Medicine, Prize ;  
Surgery and Surgical Anatomy, Cheselden Medal.
- COWEN (P.), Kennington.**  
1862. 1st Year Student, 2nd Coll. Prize.  
1863. 2nd Year Student, 2nd Coll. Prize.  
1864. 3rd Year Student, 2nd Coll. Prize.
- COWEN (T. P.), Upper Holloway.**  
w 1884-5. 1st Year Student,  $\frac{1}{2}$  1st and 2nd Coll. Prizes.  
s 1885. 1st Year Student, 2nd Coll. Prize.  
w 1885-6. 2nd Year Student, 1st. Coll. Prize.
- COX (E.), Maiden Newton, Dorsetshire.**  
1866. 1st Year Student, 3rd Coll. Prize.  
1868. 3rd Year Student, 2nd Coll. Prize.
- COXWELL (C. F.), Brighton.**  
1880. 4th Year Student, the Mead Medal.
- CRICK (S. A.), Cosby-hill, Leicestershire.**  
s 1875. 1st Year Student, Hon. Cert.  
w 1875-6. Prosector's Prize.  
w 1876-7. 3rd Year Student, 3rd Coll. Prize.
- CROFT (J.),† Clapton.**  
1851. Descriptive Anatomy, Hon. Cert.  
1853. Midwifery, Hon. Cert.
- CROFTS (W. C.), Rowston, Lincoln.**  
1855. Surgery, Hon. Cert. ;  
Midwifery, Hon. Cert.
- CROSBY (T. B.), Gosberton, Lincoln.**  
1851. Physiology, Prize ;  
Descriptive Anatomy, Prize ;  
Medicine, Prize ;  
Surgery, Prize.  
1852. Physiology, Prize ;  
Descriptive Anatomy, Hon. Cert. ;  
Medicine, Hon. Cert. ;  
Forensic Medicine, Prize ;  
Practical Chemistry, Prize ;  
Surgery, Hon. Cert. ;  
Surgery and Surgical Anatomy, Bronze Cheselden Medal ;  
Comparative Anatomy, Prize.
- CROSSMAN (J.), Redruth.**  
1871. Physical Society's 1st Year's Prize.  
1872. Physical Society's 2nd Year's Prize.  
1873. Physical Society's 3rd Year's Prize.
- CROWDY (F. D.), Bath.**  
w 1884-5. 4th Year Student, the Mead Medal.
- DAVIES (D.), Carmarthenshire.**  
1843. Chemistry, 1st Prize ;  
Midwifery, Hon. Cert. ;  
Materia Medica, Prize.

\* Assistant Obstetric Physician to, and Joint Lecturer on Forensic Medicine at, St. Thomas's Hospital.

† Member of Council and of Court of Examiners, Royal College of Surgeons. Surgeon to, and Special Lecturer on Clinical Surgery at, St. Thomas's Hospital ; late Assistant Demonstrator of Anatomy.



1844. Medicine, Hon. Cert.;  
Physiology and Anatomy, Hon. Cert.
1845. Clinical Surgical Reports, Medal.
- DAVIES (D. S.), Bristol.**  
1875-6. Physical Society's 1st Year's Prize.
- DAY (W. H.), Norwich.**  
1844. Surgery, Prize;  
Physical Society's Essay, Hon. Cert.;  
Dresser's Clinical Surgery, Prize.
- DECK (J. F.), Nelson, New Zealand.**  
1860. 1st Year Student, 1st Coll. Prize.  
1861. 2nd Year Student, 1st Coll. Prize;  
Physical Society's Prize.  
1862. 3rd Year Student, 1st Coll. Prize;  
Physical Society's Prize;  
Cheselden Medal;  
Treasurer's Gold Medal.
- DICKERSON (S. H.), Hartest, Suffolk.**  
1853. Physiology, Hon. Cert.;  
Materia Medica, Hon. Cert.;  
Midwifery, Hon. Cert.;  
Medicine, Hon. Cert.
- DIXON (E. L.), Preston, Lancashire.**  
1852. 1st Year Student, Scholarship;  
Chemistry, Hon. Cert.  
1853. 2nd Year Student, Scholarship;  
Physiology, Hon. Cert.;  
Materia Medica, Prize;  
Descriptive Anatomy, Hon. Cert.;  
Midwifery, Hon. Cert.;  
Botany, Prize;  
Medicine, Hon. Cert.  
1854. 3rd Year Student, Scholarship;  
Descriptive Anatomy, Hon. Cert.;  
Practical Chemistry, Prize;  
Physiology, Hon. Cert.
- DOBSON (N. C.),\* Holbeach, Lincolnshire.**  
1865. 1st Year Student, 1st Coll. Prize.  
1866. 2nd Year Student, 1st Coll. Prize.  
1867. 3rd Year Student, 2nd Coll. Prize;  
A Prize and Hon. Cert. for Proficiency in Surgery and Surgical Anatomy at the Cheselden Medal Examination;  
Treasurer's Gold Medal.
- DRAKE (A. J.), Kingsclere, Hants.**  
1870. 3rd Year Student, 1st Coll. Prize.
- DRAKE (C. H.), Kingsclere, Hants.**  
1857. 1st Year Student, Hon. Cert.;  
1858. 2nd Year Student, Treasurer's 1st Prize;  
Clinical Medicine, 2nd Prize.  
1859. 3rd Year Student, Hon. Cert.;  
Surgery and Surgical Anatomy, Cheselden Medal;  
General Proficiency, Treasurer's Medal.
- DRAKE (T.), Kingsclere, Hants.**  
1858. 2nd Year Student, Treasurer's 1st Prize;  
1859. 2nd Year Student, President's Prize.  
1860. 3rd Year, 1st College Prize;  
Surgery and Surgical Anatomy, Cheselden Medal;  
General Proficiency, Treasurer's Medal.

\* Surgeon to the Bristol General Hospital and Lecturer on Surgery at the Bristol Medical School.

- DREW (G. F. A.), Plymouth.**  
1848. Descriptive and Surg. Anat. Prize;  
Chemistry, Hon. Cert.;  
Botany, Prize;  
Comparative Anatomy, Hon. Cert.;  
Practical Chemistry, Prize;  
Gen. Proficiency, Hon. Cert.
1849. Physiology, 2nd Prize;  
Midwifery, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
Medicine, Hon. Cert.
1850. Physiology, Prize;  
Descriptive Anatomy, Hon. Cert.  
Medicine, Hon. Cert.;  
Surgery, Hon. Cert.
- DUKES (C.), Dalston.**  
1865. 1st Year Student, Hon. Cert.  
1867. 3rd Year Student, Hon. Cert.;  
Prosecutor's Prize and Hon. Cert.
- DUNCAN (H.), London.**  
w 1882-3. 1st Year Student, 1st Entrance Science Scholarship, 1st Coll. Prize.  
w 1883-4. 2nd Year Student, Prosecutor's Prize.
- DUNCAN (W. A.),† Manchester.**  
w 1876-7. 1st Year Student, The William Tite Scholarship.  
s 1877. 1st College Prize.  
w 1877-8. 2nd Year Student, The Musgrove Scholarship.  
w 1877-8. 2nd Year Physical Society's Prize.  
s 1878. 1st College Prize.  
w 1878-9. 2nd Tenure Musgrove Scholarship.  
1st College Prize;  
3rd Year Physical Society's Prize;  
Grainger Testimonial Prize.  
1880. 4th Year Student, The Cheselden Medal.  
The Treasurer's Medal.  
w 1881-2. The Solly Medal and Prize.
- DUNMAN (G.), Camberwell.**  
1852. Chemistry, Hon. Cert.  
1854. Midwifery, Hon. Cert.
- DYER (F. J.), Blackheath.**  
1847. Chemistry, Prize;  
Materia Medica, Hon. Cert.;  
1849. Physiology, Hon. Cert.;  
Midwifery, 2nd Prize;  
Medicine, Hon. Cert.
- ECCLES (C. H.), Brigg.**  
w 1884-5. 2nd Year Student, 1st Coll. Prize.  
s 1885. 2nd Year's Student, 1st Coll. Prize.  
w 1885-6. 3rd Year's Student, 1st Coll. Prize.
- EDDOWES (J. H.), Loughboro'.**  
1843. Physiology and Anatomy, Hon. Cert.;  
Chemistry, Hon. Cert.;  
Comparative Anatomy, Prize.  
1844. Physiology and Anatomy, Hon. Cert.;  
Clinical Medical Reports, Silver Medal.  
1845. Clinical Medicine, Prize.
- EDDOWES (W. D.), Loughboro'.**  
1845. Descriptive and Surgical Anatomy, Prize.
- EDMONDS (S.), St. Helen's, Lancashire.**  
1852. Chemistry, Hon. Cert.

† Assistant Obstetric Physician to Middlesex Hospital. Obstetric Physician Royal Hospital for Women and Children. Examiner in Midwifery, Examining Board in England.



1853. Midwifery, Hon. Cert.;  
Medicine, Hon. Cert.;  
Surgery, Hon. Cert.
1854. Surgery and Surgical Anatomy,  
Hon. Cert.;  
Clinical Medicine, Treas. Prize;  
Clinical Medicine, Pres. Prize.
1855. Surgical Reports, Pres. Prize;  
Clinical Medicine, Dr. Roots' Prize.
- EDWARDS (S.), Littlehampton.**  
1855. Midwifery, Hon. Cert.
- EDWARDS (V.), Woodbridge, Suffolk.**  
1843. Surgery, Prize.
- ELBOROUGH (P. J.), Herne Bay.**  
1845. Chemistry, Hon. Cert.  
1847. Medicine, Hon. Cert.;  
Midwifery, Prize.  
1848. Medicine, Hon. Cert.;  
Surgery, Hon. Cert.;  
Surgical Report, Pres. Prize.
- ELLIS (J.), Portsea, Hants.**  
1857. Clinical Assistant (Medicine), Hon. Cert.
- ELWIN (C. J.), London.**  
1855. Practical Midwifery, Prize.
- EVANS (C. W. DE LACEY), Bangor.**  
w 1876-7. 3rd Year Student, The Solly Prize  
and Hon. Cert.
- FAIRBANK (J.), Islington.**  
1865. 1st Year Student, Hon. Cert.  
1866. 2nd Year Student, Prosec. Prize.
- FARRANT (S.), Collumpton, Devon.**  
1859. 2nd Year Student, Hon. Cert.  
1860. 3rd Year Student, Hon. Cert.
- FAULKNER (R.), Camberwell.**  
1844. Botany, Prize;  
Clinical Medical Reports, Hon. Cert.
- FAWSSETT (F.), Surbiton.**  
w 1883-4. 1st Year Student, 2nd Entrance  
Science Scholarship. The  
William Tite Scholarship.  
s 1884. 1st Year Student, 1st Coll. Prize.  
w 1884-5. 2nd Year Student, The Mus-  
grove Scholarship.  
w 1885-6. 3rd Year Student, 2nd tenure of  
Musgrove Scholarship, with 3rd  
College Prize.
- FELL (W.), Kensington.**  
w 1878-9. 2nd Year Student Prosecutor's  
Prize.
- FENTON (H. A. H.), Westminster.**  
w 1875-6. 1st Entrance Science Scholarship.  
s 1876. 1st Year Student, 1st College Prize.
- FERNIE (A.), Yeldon, Beds.**  
1853. Physiology, Hon. Cert.;  
Surgery, Hon. Cert.
- FERNIE (W. T.), Yeldon, Beds.**  
1852. Practical Midwifery, Prize;  
Midwifery, Hon. Cert.
- FISHER (T.), St. Michael's.**  
s 1872. 1st Year Student, Hon. Cert.  
s 1873. 2nd Year Student, 2nd College Prize.  
w 1874. 2nd Year Student, 3rd College Prize.  
w 1875. 3rd Year Student, Surgery and  
Surgical Anatomy, Prize, and  
Cert. of Hon.
- FORD (G. W.), Cape of Good Hope.**  
w. 1880-81. 3rd Year Student, Prosecutor's  
Prize.
- FOWLER (J. T.), Winterton, Lincoln.**  
1854. Chemistry, Hon. Cert.  
1855. Botany, Hon. Cert.
- FOWLER (J.), Winterton, Lincoln.**  
1859. 1st Year Student, Hon. Cert.  
1860. 2nd Year Student, 2nd College Prize.  
1861. 3rd Year Student, 2nd College Prize.
- FREEMAN (D.), Kennington.**  
1859. Clinical Medicine, Prize.
- FREEMAN (A. J.), Southsea, Hants.**  
1865. 3rd Year Student, Hon. Cert.
- FULTON (J. A.), Stockwell.**  
1852. Botany, Hon. Cert.  
1853. Practical Chemistry, Prize.
- FURNIVAL (F. H.), Nottingham.**  
w 1878-9. 1st Year Student;  
The Wm. Tite Scholarship.
- GARDNER (E. B.), London.**  
1858. Matriculation Examination—Clas-  
sics and Mathematics, Prize.
- GARTON (W.), St. Helier's.**  
1870. 2nd Year Student, 2nd College Prize.  
Physical Society's 2nd Year's Prize.  
1871. Physical Society's 3rd Year's Prize.
- GEORGE (C. F.), Kirton-on-Lindsay.**  
1855. Midwifery, Hon. Cert.  
1856. 2nd Year Student, Dr. Roots' Prize.  
1857. 3rd Year Student, Hon. Cert.;  
Surgery and Surgical Anatomy,  
Cheselden Medal.
- GERVIS (F. H.), Tiverton.**  
1861. 1st Year Matriculation Scholarship.  
—College Prize, 2nd College  
Prize.  
1862. 2nd Year Student, 1st College Prize.  
1863. 3rd Year Student, Hon. Cert. and  
Physical Society's Prize.
- GERVIS (H.),\* Tiverton.**  
1856. 1st Year Student, Treas. 1st Prize;  
Matriculation Examination, Phy-  
sics, &c., Prize.  
1857. 2nd Year Student, Pres. Prize;  
Physical Society's Essay, Prize.  
1858. Clinical Assistant (Medicine), 2nd  
Prize;  
Physical Society's Essay, Prize;  
General Proficiency, Treasurer's  
Medal.
- GILES (F. W.), Henley-on-Thames.**  
w 1875-6. 3rd Year Student, Hon. Cert.
- GIMBLETT (J.), Taunton.**  
1860. 1st Year Student, Hon. Cert.
- GIMLETTE (G. H. D.), Southsea.**  
s 1874. 1st Year Student, Hon. Cert.  
w 1875-6. 3rd Year Student, Hon. Cert.  
w 1876-7. Physical Society's 3rd Year's  
Prize.
- GLOVER (J. P.), Lansdowne Road.**  
w 1881-2. 3rd Year Student, 3rd Coll. Prize.
- GODDARD (E.), London.**  
1860. Matriculation Examination, Clas-  
sics, &c., Prize.
- GODDARD (L.), London.**  
1856 Matriculation Examination, Clas-  
sics and Mathematics, Prize.

\* Obstetric Physician to, and Lecturer on  
Midwifery and Diseases of Women and  
Children at, St. Thomas's Hospital. Con-  
sulting Physician to the Royal Maternity  
Charity. Examiner in Obstetric Medicine,  
Royal College of Physicians.

**GODFREY (A. E.),** Northampton.  
s 1883. 2nd Year Student, 2nd Coll. Prize.  
w 1883-4. 3rd Year Student, 2nd Coll. Prize.

**GODDY (E. S.),** Hampstead.  
w 1882-3. 2nd Year Student, 3rd Coll. Prize.  
s 1883. 2nd Year Student, 1st Coll. Prize.

**GOWLAND (W.),** London.  
1845. Botany, Hon. Cert.

**GRABHAM (C.),** Islington.  
1857. Matriculation Examination, Modern Languages, Prize.

**GRABHAM (G. W.),\*** Islington.  
1855. Matriculation Examination, Scholarship;  
Midwifery, Hon. Cert.;  
Materia Medica, Hon. Cert.

**GRABHAM (J.),** Rochford, Essex.  
1848. Descriptive and Surgical Anatomy, Hon. Cert.;  
Chemistry, Hon. Cert.;  
Botany, Hon. Cert.;  
Comparative Anatomy, Prize.  
1850. Physiology, Hon. Cert.  
1851. Physiology, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
Forensic Medicine, Prize;  
Surgery, Prize;  
Midwifery, Hon. Cert.

**GRABHAM (M. C.),** Islington.  
1860. 2nd Year Student, Hon. Cert.  
1861. 3rd Year Student, Hon. Cert.

**GREAVES (C. A.),** Derby.  
1861. 1st Year Student, Treasurer's Prize;  
Matriculation Examination, Hon. Cert.  
1862. 2nd Year Student, 2nd College Prize;  
Physical Society's Prize.  
1863. 3rd Year Student, 1st College Prize;  
Physical Society's Prize;  
Cheselden Medal.

**GREEN (C. D.),** New Cross.  
w 1879-80. 1st Year Student, The Wm. Tite Scholarship.  
s 1880. 3rd College Prize.  
w 1880-81. 1st College Prize.  
s 1882. 1st Coll. Prize.  
w 1882-3. 4th Year Student, qualified for Treasurer's Gold Medal.

**GREEN (J. T.),** Peckham, Surrey.  
1865. 1st Year Student, Physical Society's Prize.

**GREEN (M. H.),** Peckham.  
s 1873. 1st Year Student, 2nd College Prize.

**GROSE (S.),** Boston, Lincoln.  
1858. 2nd Year Student, Hon. Cert.  
1859. Physical Society's Essay Prize.

**GRIFFITHS (A. L.),** London.  
1859. Midwifery, Hon. Cert.

**GULLIVER (G.),†** Canterbury.  
w 1876-7. Physical Society's 2nd Year's Prize.

\* Government Inspector of Lunatic Asylums and Hospitals, New Zealand. Late Resident Medical Superintendent at Earlswood Asylum.

† Assistant Physician to, and Lecturer on Comparative Anatomy at, St. Thomas's Hospital, Assistant Physician to London Fever Hospital.

**GURNEY (R. A. F.),** Rampton, Cambridge.

1851. Practical Midwifery, Prize.

**HAGUE (S.),‡** Camberwell.

1863. 1st Year Student, 2nd Coll. Prize.

**HAIG-BROWN (C. W.),** Godalming.  
s 1878. 1st Year Student, 2nd College Prize;  
w 1878-9. 2nd Year Student, 2nd College  
w 1880-81. The Cheselden Medal. [Prize.

**HAMMERTON (E.),** Elland, York.

1857. 1st Year Student, Hon. Cert.

**HAMMOND (J. H.),** Bridlington, York.  
1850. Medical Cases, President's Prize.

**HARDING (J. A.),** Bath.

1859. Clinical Medicine, 2nd Prize.

1860. Clinical Assistant (Medicine), 1st Prize.

**HARPER (R.),** Brighton.

1844. Clinical Surgical Reports, Hon. Cert.

1845. Physical Society's Essay, Prize.

Dresser's Clinical Surgery, Prize.

**HASLAM (W. F.),§** Reading.

s 1876. 2nd Year Student, 1st College Prize.  
w 1877-8. The Cheselden Medal.

**HATCHETT (F. W.),** S. Wales.

s 1880. 1st Year Student, 1st College Prize.

**HATTON (G. S.),** Newent, Gloucestershire. [Prize.

w 1876-7. 2nd Year Student, Prosector's

**HAWKINS (H. P.),||** Hawkhurst.

w 1882-3. 1st Year Student, The William Tite Scholarship.

w 1883-4. 2nd Year Student. The Peacock Scholarship.

w 1884-5. 3rd Year Student, 2nd tenure of Peacock Scholarship and 1st Coll. Prize.

w 1885-6. 4th Year Student, qualified for Mead Medal.

**HEELIS (R.),** Carshalton.

s 1877. 1st Year Student, 2nd College Prize.

s 1878. 2nd Year Student, 2nd Coll. Prize.

**HEFFERNAN (H. H.),** Southsea.

w 1883-4. 1st Year Student, 2nd Coll. Prize.

**HEIGHTON (T.),** Leicester.

w 1873. 3rd Year Student, Hon. Cert.

**HEWLETT (T. J.),** Harrow.

1850. Matriculation Scholarship, Prize.

**HEYGATE (W. N.),** Harslope, Bucks.

1863. 2nd Year Student, Hon. Cert.

1864. 3rd Year Student, Hon. Cert.

**HICKS (J. W.),¶** Highgate New Town, N.

1859. 1st Year Student, Treasurer's 1st Prize.

1860. 2nd Year Student, 1st College Prize;  
Physical Society's Prize.

1861. 3rd Year Student, 1st College Prize;  
Physical Society's Prize;  
Cheselden Medal;

Treasurer's Gold Medal.

‡ Late Medical Registrar at St Thomas's Hospital.

§ Assistant Surgeon to the Birmingham General Hospital, late Demonstrator of Anatomy at St. Thomas's Hospital.

|| Radcliffe Travelling Fellow, Oxford, 1846.

¶ Late Lecturer on Botany at St. Thomas's Hospital; late Curator of the Museum.



- HIGGINS (A. H.),** Bermondsey.  
1857. Midwifery, Hon. Cert.
- HILDITCH (J.),** Sandbach, Cheshire.  
1857. 1st Year Student, Hon. Cert.  
1858. Physical Society's Essay, Prize.  
1859. Essay on Neuralgia, Mr. N. Smith's Prize.
- HOBHOUSE (E.),** Batcombe.  
w 1885-6. 3rd Year Student, 2nd Coll. Prize.
- HODGES (H. B.).**  
1855. Midwifery, Hon. Cert.
- HODGES (R.),** London.  
1843. Physiology and Anatomy, Hon. Cert.;  
Medicine, Hon. Cert.;  
Clinical Medicine, Hon. Cert.;  
Surgical Essay, Silver Medal.
- HO KAI,** Hong Kong, China.  
w 1875-6. 1st Year Student, Hon. Cert.  
s 1876. Hon. Cert.  
w 1876-7. 2nd Year Student, Hon. Cert.
- HOLBERTON (H. N.),** Hampton.  
w 1876-7. 2nd Entrance Science Scholarship, and 2nd College Prize.  
w 1877-8. 2nd Year Student, 1st Coll. Prize.
- HOOPER (J. H.),** Upton Warren.  
1858. 1st Year Student, Hon. Cert.  
1859. 2nd Year Student, College Prize.  
1860. 3rd Year Student, Hon. Cert.
- HOPTON (A. W.),** Stockwell.  
1851. Descriptive Anatomy, Hon. Cert.
- HOWELL (T.),** London.  
1850. Practical Midwifery, Prize.
- HUBBARD (J. W.),** Leicester.  
1847. Clinical Medical Reports, Prize;  
Medicine, Prize;  
Physiology and Anatomy, Hon. Cert.  
Physical Society's Essay, Treasurer's Prize.
- HULL (W. W.),** Acton.  
w 1878-9. 2nd Entrance Science Scholarship.  
w 1881-2. The Mead Medal.
- HUNT (J. A.),** Derby.  
w 1873. 1st Year Student, Hon. Cert.  
w 1874. Prosector's Prize.
- HUNTER (W. F.),** Margate.  
1859. 1st Year Student, Hon. Cert.;  
Matriculation Examination in Classics and Mathematics, Prize;  
Matriculation Examination in Modern Languages, Prize.  
1860. 2nd Year Student, 3rd Coll. Prize.  
1861. 3rd Year Student, Hon. Cert.
- HURMAN (H. B.),** Bridgewater.  
1853. Midwifery, Hon. Cert.
- HUTTON (J. S.),** Sevenoaks.  
w 1881-2. Entrance Science Scholarship. 2nd Coll. Prize.  
s 1882. 1st Coll. Prize.  
s 1884. 3rd Year Student,  $\frac{1}{2}$  1st and 2nd Coll. Prizes.  
w 1884-5. 4th Year Student, qualified for the Mead and Treasurer's Medals.
- ILES (D.),** Fairford.  
1863. 2nd Year Student, Hon. Cert.  
1864. 3rd Year Student, Hon. Cert.
- INGLIS (W. W.),\*** Brixton Hill.  
1864. 1st Year Student, 2nd Coll. Prize.  
1865. 2nd Year Student, 2nd Coll. Prize.  
1866. 3rd Year Student, 3rd Coll. Prize Cheselden Medal.
- IVES (R.)**  
1855. Midwifery, Hon. Cert.
- JACKSON (T. C.),** Rotherhithe.  
1844. Materia Medica, Hon. Cert.
- JACOB (E. H.),** Winchester.  
w 1875-6. Physical Society's 3rd Year's Prize.
- JACOBSON (T. E.),** Sleaford, Lincoln.  
1852. Practical Midwifery, Prize.
- JARDINE (J. L.),** Brixton.  
1848. Physiology and Anatomy, Hon. Cert.  
1850. Medical Reports, Dr. Roots' Prize.
- JAY (M.),** Wallaroo, South Australia.  
w 1877-8. 1st Year Student, 3rd Coll. Prize.  
w 1878-9. 2nd Year Student, 2nd College Prize;  
Prosector's Prize.
- JEFFERSON (T. J.),** Hull.  
1861. 2nd Year Student, Hon. Cert.  
1862. 3rd Year Student, Hon. Cert.
- JOHNSON (W. G.),** Wandsworth.  
1853. Chemistry, Hon. Cert.  
1854. Midwifery, Hon. Cert.  
1855. Comparative Anatomy, Prize; Midwifery, Hon. Cert.
- JOHNSTON (G. D.).**  
w 1882-3. 4th Year, Cheselden Medal.
- JONES (S.),†** Cricklewood, Middlesex.  
1851. Matriculation Scholarship, Prize;  
Descriptive Anatomy, Hon. Cert.;  
Chemistry, Hon. Cert.;  
1st Year Student, Scholarship.  
1852. 2nd Year Student, Scholarship;  
Physiology, Hon. Cert.;  
Descriptive Anatomy, Prize;  
Botany, Hon. Cert.  
1853. Physiology, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
3rd Year Student, Scholarship;  
Materia Medica, Hon. Cert.
- JONES (Sydney H.),** George Street, Hanover Square.  
w 1881-2. 1st Year Student, Entrance Science Scholarship. The Wm. Tite Scholarship.  
w 1882-3. 2nd Year Student,  $\frac{1}{2}$  Musgrove Scholarship and 1st Coll. Prize combined.  
Prosector's Prize.  
w 1883-4. 3rd Year Student, 2nd tenure of  $\frac{1}{2}$  Musgrove Scholarship, with 1st College Prize.  
s 1884. 3rd Year Student,  $\frac{1}{2}$  1st and 2nd Coll. Prizes.  
w 1884-5. 4th Year Student, The Cheselden Medal.  
Treasurer's Gold Medal.
- JONES (A. O.),** Islington.  
1862. 1st Year Student, Hon. Cert.

\* Late Medical Registrar at St. Thomas's Hospital.

† Member of Council, Royal College of Surgeons; Surgeon to, and Joint Lecturer on Surgery at, St. Thomas's Hospital; late Lecturer on Anatomy and Ophthalmic Surgery.



**JONES (J.), Ilfracombe.**

1863. Matriculation Examination —  
Modern Languages and Modern  
History, College Prize.

**JONES (W. Wansbrough),\* Leek.**

w 1877-8. 1st Year Student;  
1st Entrance Science Scholarship;  
£60.

The William Tite Scholarship.

w 1877-8. 1st Year Physical Society's Prize;

s 1878. 1st Year Student, 1st Coll. Prize;

w 1878-9. 2nd Year Student, The College  
Scholarship;

s 1879. 2nd Year Student, 2nd Coll. Prize;

w 1879-80. 3rd Year Student, 2nd tenure of  
Coll. Scholarship, and 1st Coll. Prize.

w 1880-81. The Mead Medal;

Treasurer's Gold Medal.

**JOSEPH (S. W. J.), St. Leonards.**

1873. Physical Society's 2nd Year Prize.

**KEELE (J. T.), South Lambeth.**

1853. Materia Medica, Hon. Cert.;

Midwifery, Hon. Cert.

**KERAKOOSSE (J.), East Indies.**

1854. Midwifery, Hon. Cert.

**KEYWORTH (J. W.),† Aston, Berks.**

1848. Chemistry, Hon. Cert.;

Materia Medica, Prize;

General Proficiency, Hon. Cert.

1849. Physiology, Hon. Cert.;

Midwifery, 3rd Prize;

Medicine, Hon. Cert.;

Physical Society's Essay, Prize.

1850. Physiology, Hon. Cert.;

(Accoucheur) Midwifery, Hon. Cert.;

Ophthalmic Reports, a Governor's  
Prize;

Essay on Neuralgia, Mr. Newman  
Smith's Prize.

1851. Comparative Anatomy, Prize;

Clinical Medicine, Prize;

Surgical Reports, Prize;

Midwifery, Prize;

Medical Reports, Prize;

Pathology, Prize;

Physical Society's Essay, Prize.

**KIDD (H. C.), Upper Norwood.**

w 1881-2. 1st Year Student, 3rd Coll. Prize.

w 1884-5. 4th Year Student, qualified for  
the Mead Medal.

**KNAGGS (R. H. E.), Trinidad, W.  
Indies.**

w 1875-6. Prosector's Prize.

**LAKE (W. W.), Ilford, Essex.**

1873. Physical Society's 1st Year's Prize.

**LAKE (R.), Dover.**

w 1881-2. 2nd Year Student, Prosector's  
Prize.

w 1883-4. 4th Year Student, qualified for  
Cheselden Medal.

**LANKESTER (A. C.), Leicester.**

w 1885-6. 1st Year Student, 1st Coll. Prize.

**LANKESTER (H.), Poole, Dorset.**

1850. 1st Year Student, Scholarship;

Descriptive Anatomy, 1st Prize;

Chemistry, Prize.

1851. Physiology, Prize;

Materia Medica, Prize;

Descriptive Anatomy, Hon. Cert.;

Botany, Hon. Cert.;

Medicine, Prize;

Physical Society's Essay, Prize;

Surgery, Hon. Cert.

1852. 3rd Year Student, Scholarship;

Physiology, Hon. Cert.;

Descriptive Anatomy, Hon. Cert.;

Medical Cases, President's Prize;

Medicine, Prize;

Surgery, Prize;

Surgery and Surgical Anatomy

Cheselden Medal;

General Proficiency, Treasurer's  
Medal.

1853. Surgical Essay, President's Prize.

**LANKESTER (H. H.), Leicester.**

w. 1880-81. Entrance Science Scholarship.

1st Year Student 2nd Coll.

Prize.

w 1881-2. 2nd Year Student, The College  
Scholarship Two Years.

**LAVER (H.)**

1855. Midwifery, Hon. Cert.

**LAVER (A. H.), Rayleigh.**

1870. 1st Year Student, 3rd Coll. Prize.

1871. 2nd Year Student, 2nd Coll. Prize.

w 1872. 3rd Year Student, 2nd Coll. Prize,  
Cheselden Medal.

**LAWSON (R.), St. Andrews, N.B.**

w 1880-81. 1st Entrance Science Scholarship.

1st Year Student, The Wm. Tite  
Scholarship.

s 1881. 2nd Coll. Prize.

w 1881-2. 2nd Year, 2nd Coll. Prize.

w 1882-3. 3rd Year, 2nd Coll. Prize.

w 1883-4. 4th Year Student, The Cheselden  
Medal.

Treasurer's Gold Medal.

**LAXTON (T. L.), Stamford.**

w 1876-7. 2nd Year Student, Prosector's Prize.

**LEDGER (M.), London.**

1845. Dresser's Clinical Surgery, Prize.

**LEES (J.),‡ Wolverhampton.**

1859. 1st Year Student, Hon. Cert.;

1861. 3rd Year Student, Hon. Cert.;

Physical Society's Prize.

**LEESON (T.), Snaith, York.**

1847. Medicine, Hon. Cert.;

Surgery, Prize;

Physiology and Anatomy, Hon.  
Cert.;

Descriptive and Surgical Anatomy,  
Hon. Cert.;

Midwifery, Hon. Cert.

1848. Descriptive and Surgical Anatomy,  
Hon. Cert.;

Physiology and Anatomy, Hon.  
Cert.;

Medicine, Hon. Cert.;

Midwifery, Prize.

**LE GROS (J.), Jersey.**

1844. Medicine, Hon. Cert.;

Midwifery, 1st Prize.

1845. Clinical Medical Reports, Medal;

Medicine, Hon. Cert.;

Dresser's Clinical Surgery, Prize.

**LEREW (F. W.), Maida Vale.**

s 1876. 1st Year Student, Hon. Cert.

\* Radcliffe Travelling Fellow, Oxford,  
1880. Resident Medical Officer, Barnes  
Convalescent Hospital, Manchester.

† Late Lecturer on Physiology at Syden-  
ham College, Birmingham.

‡ Late Demonstrator of Morbid Anatomy  
at St. Thomas's Hospital.

**LITTELJOHN (S. G.), Falmouth, Jamaica.**

1865. 1st Year Student Hon. Cert.

**LOCOCK (H. S.), Blackheath.**

1848. Descriptive and Surgical Anatomy, Hon. Cert.;

Physiology and Anatomy, Hon. Cert.;

Midwifery, Hon. Cert.

1849. Physiology, Hon. Cert.

**LONGSTAFF (G. B.), Wandsworth.**

w 1873-4. 1st Year Student, 2nd Coll. Prize.

s 1874. 1st Coll. Prize;

Physical Society's 1st Year's Prize;

s 1875. 2nd Year Student, 2nd Coll. Prize.

w 1875-6. 3rd Year Student, 1st Coll. Prize.

w 1876-7. 4th Year Student, Mead Medal.

**LUSH (W. H.), Devizes.**

w 1872. 2nd Year Student, Prosector's Prize.

**LUSH (J. S.), West Lavington.**

s 1873. 1st Year Student, 3rd Coll. Prize.

**MACEVOY (H. J.), Chantilly.**

w 1884-5. 3rd Year Student,  $\frac{1}{2}$  2nd and 3rd College Prizes.

s 1885. 3rd Year Student,  $\frac{1}{2}$  1st and 2nd Coll. Prizes.

w 1885-6. 4th Year Student, Bronze Mead Medal.

**MACKENZIE (H. W. G.),\* Edinburgh.**

w 1882-3. 3rd Year Student, 3rd Coll. Prize.

s 1883. 3rd Year Student, 1st Coll. Prize.

w 1883-4. 4th Year Student, The Mead Medal.

**MACMURDO (H. H.), New Broad Street.**

1847. Chemistry, Hon. Cert.

1849. Midwifery, Hon. Cert.

**MANBY (W. G.), Barking, Essex.**

1851. Descriptive Anatomy, Hon. Cert.

**MARCH (H. C.), Newbury.**

1858. 1st Year Student, Treasurer's 2nd Prize.

1859. 2nd Year Student, Hon. Cert.

1860. 3rd Year Student, Hon. Cert.

**MARTIN (C. J.), Dalston.**

w 1884-5. 1st Year Student, 2nd Entrance Scholarship.

**MASON (M. T.), Newington.**

1845. Practical Midwifery, Hon. Cert.

**MAYBURY (A. C.), Frimley, Surrey**

1865. 3rd Year Student, Hon. Cert.

**MAYBURY (W. A.), Frimley, Surrey.**

1867. 1st Year Student, 3rd College Prize.

**MAYBURY (H. M.), Frimley, Surrey.**

1869. 1st Year Student, 2nd Coll. Prize;

1871. 3rd Year Student, 3rd Coll. Prize.

**MAYBURY (A. V.), Frimley.**

1870. 1st Year Student, 2nd Coll. Prize.

1871. 2nd Year Student, 1st Coll. Prize.

w 1872. 3rd Year Student, 1st Coll. Prize; Treasurer's Gold Medal.

**MAYNARD (J. C. M.)**

1855. Midwifery, Hon. Cert.

**MEADOWS (H.), Leicester.**

1867. 1st Year Student, The William Tite Scholarship;

Phys. Soc. 1st Year's Prize.

1869. 2nd Year, Tite Scholarship; Phys. Soc. 2nd Year's Prize.

**MILLER (B.), London.**

1845. Midwifery, Hon. Cert.;

Practical Midwifery, Prize;

Clinical Medicine, Prize.

**MILNE (C. W.), Aberdeen.**

1865. 1st Year Student, Hon. Cert.

**MITCHELL (J.), Leicester.**

1866. 1st Year Student, 2nd Coll. Prize;

Phys. Society's 1st Year's Prize.

1867. 2nd Year Student, 2nd Coll. Prize.

1868. 3rd Year Student, 2nd Coll. Prize.

**MONEY (F. J.), Offham, Kent.**

1849. Descriptive Anatomy, 2nd Prize;

Chemistry, Prize;

Materia Medica, 1st Prize;

Matriculation Scholarship, Prize;

1st Year Student Scholarship.

1850. Physiology, Prize;

Comparative Anatomy, Prize;

Descriptive Anatomy, Prize;

Medicine, Prize;

Surgery, Hon. Cert.

1851. Descriptive Anatomy, Hon. Cert.;

Midwifery, Prize;

Medicine, Prize;

Physical Society's Essay, Prize;

Surgery, Prize;

Surgery and Surgical Anatomy,

Cheselden Medal;

General Proficiency, Treasurer's

Gold Medal.

**MONTAGUE (A. J. H.), Wandsworth Road.**

w 1884-5. 4th Year Student, qualified for the Mead Medal.

**MORETON (J. E.), Marton, Cheshire.**

1850. 1st Year Student, Scholarship;

Descriptive Anatomy, Hon. Cert.;

Chemistry, Hon. Cert.

1851. Materia Medica, Hon. Cert.;

Botany, Hon. Cert.;

1852. Physiology, Prize;

Descriptive Anatomy, Prize;

Physical Society's Essay, Prize;

Medicine, Prize;

Surgery, Prize;

2nd Year Student, Scholarship.

1853. 3rd Year Student, Scholarship;

Physiology, Prize;

Clinical Medicine, Pres. Prize;

Clinical Medicine, Treas. Prize;

Clinical Medicine, Mr. N. Smith's

Prize;

Descriptive Anatomy, Hon. Cert.;

Midwifery, Hon. Cert.;

Ophthalmic Surgery, Prize;

Medicine, Prize;

Forensic Medicine, Hon. Cert.;

Surgery, Hon. Cert.;

Surgery and Surgical Anatomy,

Cheselden Medal;

Gen. Proficiency, Treas. Medal.

1854. Clinical Med., Dr. Roots' Prize;

Pathology, Hon. Cert.

**MORETON (T.), Marton, Cheshire.**

1857. 1st Year Student, Treasurer's 2nd Prize;

Matriculation Examination, Classics and Mathematics, Prize.

1858. Clinical Medicine, Prize.

\* Resident Assistant Physician to St. Thomas's Hospital.



1859. 3rd Year Student, Hon. Cert.;  
Clinical Medicine, Hon. Cert.
- MORGAN (S.),** London.  
1852. Descriptive Anatomy, Hon. Cert.  
1853. Midwifery, Hon. Cert.  
1854. Midwifery, Hon. Cert.;  
Forensic Medicine, 2nd Prize.
- MORRIS (C. K.),** Spalding, Lincolnshire.  
w 1875. Prosector's Prize.
- MORTON (J.),** Holbeach, Lincoln.  
1861. 1st Year Student, Hon. Cert.  
1862. 2nd Year Student, Hon. Cert.  
1863. 3rd Year Student, Hon. Cert.
- MOXON (H. M.),** Brigsham.  
1871. Prosector's Prize.
- MUSSON (W. E.),** Birkholme, Lincoln.  
1850. Matriculation Scholarship, Prize;  
Descriptive Anatomy, Hon. Cert.  
1851. Physiology, Hon. Cert.;  
Comparative Anatomy, Hon. Cert.;  
Medicine, Hon. Cert.
- NEWBY (C. H.),\*** London.  
1870. Prosector's Prize.
- NEWSHOLME (A.),** Bradford.  
w 1875-6. 1st Year Student, 1st Coll. Prize.  
w 1876-7. 2nd Year Student, 1st College  
Scholarship.  
s 1877. Ditto 1st Coll. Prize.  
w 1877-8. 3rd Year Student, The "College  
Scholarship," 1st Coll. Prize.
- NEWTN (A. H.),** Kennington,  
Surrey.  
1865. 1st Year Student, Hon. Cert.
- NICHOL (F. E.),** Roupell Park.  
w 1884-5. 4th Year Student, qualified for  
the Cheselden Medal.
- NICHOL (R.),** Camberwell.  
1844. Chemistry, 1st Prize;  
Materia Medica, Prize. [Cert.;  
1845. Physiology and Anatomy, Hon.  
Botany, Prize;  
Comparative Anatomy, Prize.
- NICHOLSON (F. W.),** Putney.  
s 1877. 1st Year Student, 3rd Coll. Prize.  
w 1877-8. 2nd Year Student, Prosector's  
Prize.
- NICHOLSON (J. F.),†** Brigg, Lincoln.  
w 1873. 1st Year Student, 1st Coll. Prize.  
s 1873. 1st Year Student, 1st Coll. Prize.  
w 1874. 2nd Year Student, 1st Coll. Prize.  
s 1874. Ditto 1st Coll. Prize.  
w 1875. 3rd Year Student, 1st Coll. Prize;  
Cheselden Medal;  
Mead Medal;  
Treasurer's Gold Medal.
- O'CALLAGHAN (C.),** Killarney.  
1847. Chemistry, Hon. Cert.;  
Materia Medica, Prize.  
1848. Medical Reports, President's Prize;  
Physiology and Anatomy, Hon.  
Cert.;  
Midwifery, Hon. Cert.;  
Practical Midwifery, Prize;

\* Late Surgical Registrar at St. Thomas's Hospital.

† Physician to the Hull General Infirmary.

- Forensic Medicine, Prize;  
Physical Society's Essay, Prize.
1849. Physical Society's Essay, Treasurer's Prize;  
Resident Accoucheur's Report, Prize.
- ORANGE (W.),‡** Torquay.  
1854. Midwifery, Hon. Cert.  
1856. Midwifery, Hon. Cert.
- ORD (G. R.),** Brixton.  
1858. Midwifery, Hon. Cert.
- ORD (W. M.),§** Brixton.  
1853. Matriculation Examination,  
Scholarship;  
1st Year Student, Scholarship;  
Descriptive Anatomy, Prize;  
Chemistry, Prize.  
1854. 2nd Year Student, Scholarship;  
Medicine, Prize;  
Materia Medica, Prize;  
Descriptive Anatomy, Hon. Cert.;  
Midwifery, Hon. Cert.;  
Surgery, Hon. Cert.;  
Physiology, Prize.  
1855. 3rd Year Student, Scholarship;  
Surgery and Surgical Anatomy,  
Cheselden Medal;  
Forensic Medicine, Prize;  
Pathology, Prize;  
Practical Chemistry, Prize;  
Medicine, Hon. Cert.;  
Descriptive Anatomy, Hon. Cert.;  
Physiology, Prize;  
General Proficiency, Treasurer's  
Medal.  
1856. Registrar, Prize.
- ORD (W. W.),** Brook Street.  
s 1884. 1st Year Student, 2nd Coll. Prize.  
w 1884-5. 2nd Year Student,  $\frac{1}{2}$  2nd College  
Prize.
- OSBORN (S.),||** Brixton.  
1870. Physical Society's 2nd Year's Prize.
- OUGHTON (T.),** London.  
1858. Clinical Medical Assistant, 1st Prize.
- OZANNE (C. H.),** Guernsey.  
1844. Descriptive and Surgical Anatomy,  
Prize.
- OZANNE (J.),** Guernsey.  
1843. Physiology and Anatomy, Chesel-  
den Medal;  
Comparative Anatomy, Hon. Cert.  
1844. Medicine, Prize;  
Midwifery, 2nd Prize;  
Surgery, Hon. Cert.;  
Physical Society's Essay, Prize;  
Clinical Surgical Reports, Silver  
Medal.
- PAGE (W. H.),** Cheltenham.  
s 1872. 1st Year Student, Hon. Cert.  
w 1873. 3rd Coll. Prize.

‡ Resident Medical Superintendent at Broadmoor Asylum.

§ Physician to, and Joint Lecturer on Medicine at, St. Thomas's Hospital. Late Lecturer on Comparative Anatomy, Physiology, and Practical Physiology.

|| Assistant Surgeon to the Hospital for Women, Sobo Square. Late Surgical Registrar at St. Thomas's Hospital.



**PALMER (M. H. C.),** Newbury, Berks.  
1870. Physical Society's 2nd Year's Prize.  
1872. Physical Society's 3rd Year's Prize.

**PARSONS (F.).**

w 1882-3. 2nd Year, Prosector's Prize.

**PEARCE (G.),** Salisbury.

1860. 1st Year Student, 2nd Coll. Prize.

1861. 2nd Year Student, 2nd Coll. Prize.

**PEEK (F. H.),** Diss, Norfolk.

s 1872. 1st Year Student, 1st Coll. Prize.

w 1873. The William Tite Scholarship.

w 1874. 2nd Year Wm. Tite Scholarship.

**PENBERTHY (J.),** Redruth.

1854. 1st Year Student, Scholarship;

Descriptive Anatomy, Prize;

Chemistry, Hon. Cert.

1855. 2nd Year Student, Scholarship;

Midwifery, Hon. Cert.;

Botany, Prize;

Descriptive Anatomy, Hon. Cert.

**PERN (A.),** Winchester, Hampshire.

1865. 1st Year Student, Hon. Cert.

**PHILLIPS (G. G.),** Newcastle Emlyn.

1859. 2nd Year Student, Hon. Cert.

1860. 3rd Year Student, 3rd Coll. Prize.

**PICKFORD (J. K.),** Brixton.

w 1872. 1st Year Student, 3rd Coll. Prize.

s 1872. Hon. Cert.

**PIETERSEN (J.),** Cape of Good Hope.

w 1883-4. Solly Medal and Prize.

**PIKE (W. R.),** Leicester.

1868. Physical Society's 1st Year's Prize.

**PIKE (J. B.),** Leicester.

w 1872. 2nd Year Student, Hon. Cert.

w 1873. 3rd Year Student, Hon. Cert.

**PLOWMAN (R.),** Bridgewater, Somst.

1862. 1st Year Student, Hon. Cert.

1863. 2nd Year Student, Hon. Cert.

1865. 3rd Year Student, Hon. Cert.

**POLLARD (F.),** Taunton, Somerset.

1865. 1st Year Student, 2nd Coll. Prize.

1866. 2nd Year Student, 2nd Coll. Prize;

Physical Society's 2nd Year's Prize.

1868. 3rd Year Student, 1st Coll. Prize;

Physical Society's 3rd Year's Prize;

Cheselden Medal.

**POTTER (H. P.),\*** Denmark Hill.

w 1872. 1st Year Student, Hon. Cert.

s 1872. 3rd College Prize.

w 1873. 2nd Year Student, 2nd Coll. Prize;

Prosector's Prize.

w 1874. 3rd Year Student, 1st Coll. Prize;

Cheselden Medal;

Hon. Cert. for Gen. Proficiency.

1875. Grainger Testimonial Prize.

**POYNDER (G. F.),** Clapham.

1872. Phys. Society's 1st Year's Prize.

1874. Phys. Society's 3rd Year's Prize.

**PURKISS (A.),** Kennington.

w 1875-6. 1st Year Student, Hon. Cert.

s 1876. Hon. Cert.

**PURVIS (J. P.),** Blackheath.

1861. 1st Year's Student, Hon. Cert.;

Matriculation Examination, Hon. Cert.

1862. 2nd Year Student, Hon. Cert.

1863. 3rd Year Student, Hon. Cert.

**RAINBOW (F.),** Lower Norwood.

1864. 1st Year Student, Hon. Cert.

1865. 2nd Year Student, 3rd Coll. Prize.

1866. 3rd Year Student, 2nd Coll. Prize.

**RAYNER (H.),†** Hythe, Kent.

1862. Matriculation Examination—Physics and Natural History, Hon. Cert.;

1st Year Student, 1st Coll. Prize.

1863. 2nd Year Student, 1st Coll. Prize.

1864. 3rd Year Student, Hon. Cert.;

Hon. Cert. for the Cheselden Medal.

**RELTON (B.),** Ealing.

1880. 2nd Entrance Science Scholarship.

**RICHARDSON (C. S.),** Greenwich.

1851. Surgery, Hon. Cert.

1852. Midwifery, Prize.

**RICHARDSON (L.),** Greenwich.

1848. General Pathology, Prize.

**RIDGE (J. J.),** Horsleydown.

1864. 1st Year Student, The William Tite Scholarship.

1865. 2nd Year of Tite's Scholarship;

Physical Society's 2nd Year's Prize;

Prosector's Prize.

1866. The Grainger Testimonial Prize.

1868. 3rd Year Tite Scholarship;

Hon. Cert. for Proficiency in

Surgery and Surgical Anatomy

Treasurer's Gold Medal.

**ROBERTS (E. A.),** Birmingham.

w 1884-5. 1st Year Student,  $\frac{1}{2}$  1st and 2nd College Prizes.

**ROBINSON (H. B.),** Lower Norwood.

s 1881. 2nd Year Student, 1st Coll. Prize.

**ROE (A. D.),** Eccles.

w. 1880-81. 3rd Year Student, 2nd Coll. Prize.

**ROGERS (R. S.),** Greenwich.

1843. Midwifery, First Prize;

Clinical Medicine, Hon. Cert.

**ROSSITER (G. F.),** Taunton.

1871. 1st Year Student, 1st Coll. Prize.

w 1872. 2nd Year Student, 2nd Coll. Prize.

s 1872. 1st Coll. Prize.

w 1873. 3rd Year Student, 3rd Coll. Prize;

Cheselden Medal;

Treasurer's Gold Medal.

**ROUSE (R. E.),** Woodbridge.

s 1880. 2nd Year Student, 3rd College Prize.

**RUDALL (J. T.),** Crediton, Devon.

1853. Physiology, Hon. Cert.;

Midwifery, Hon. Cert.;

Medicine, Hon. Cert.;

Surgery, Hon. Cert.

**SANDFORD (H. C.),** Brixton.

w 1872. 1st Year Student, 1st Coll. Prize.

s 1872. 2nd College Prize.

w 1873. 2nd Year Student, 1st Coll. Prize.

s 1873. 3rd College Prize.

w 1874. 3rd Year Student, 2nd Coll. Prize;

Treasurer's Gold Medal.

\* Late Surgical Registrar to St. Thomas's Hospital.

† Medical Superintendent Hanwell Asylum, and Lecturer on Psychology at St. Thomas's Hospital. Late Lecturer on Psychology at Middlesex Hospital.

- SANEYOSHI (Y.)**, Tokio, Japan.  
w 1881-2. 3rd Year Student, 1st Coll. Prize.
- SANKEY (G. G.)**, Ashford, Kent.  
1864. 3rd Year Student, 3rd Coll. Prize.
- SAUNDERS (G. M. C.)**, London.  
1843. Midwifery, Hon. Cert.
- SAUNDERS (H. W.)**, London.  
1867. 1st Year Student, 2nd Coll. Prize.  
1868. Prosector's Prize.  
1869. 3rd Year Student, 1st Coll. Prize;  
Treasurer's Gold Medal;  
Physical Society's 3rd Year's Prize.
- SAUNDERS (W. S.)**, Camden Town.  
1844. Midwifery, Hon. Cert.  
1845. Medicine, Prize;  
Midwifery, Prize;  
Clinical Medicine, Prize.
- SAVILL (T. D.)**, Brixton.  
w 1875-6. 2nd Entrance Science Scholarship;  
1st Year Student, The William  
Tite Scholarship.  
s 1876. 3rd College Prize.  
w 1876-7. 2nd Year Student, Hon. Cert.  
s 1877. 2nd Year Student, 2nd Coll. Prize.
- SCOTT (R. J.)**, Omagh, Tyrone.  
1861. 1st Year Student, Hon. Cert.
- SCUTT (T.)**, Bere Regis.  
w 1882-3. 3rd Year Student, 1st Coll. Prize.
- SEDGWICK (J.)**, Boroughbridge.  
1854. Descriptive Anatomy, Hon. Cert.  
1855. Surgery, Hon. Cert.;  
Midwifery, Hon. Cert.
- SEDGWICK (L. W.)**, Boroughbridge.  
1848. Descriptive and Surgical Anatomy,  
Prize;  
Physiology and Anatomy, Prize;  
Medicine, Hon. Cert.;  
Midwifery, Prize;  
Surgery, Prize;  
1849. Physiology, 1st Prize;  
Midwifery, 1st Prize;  
Surgery, Prize;  
Medicine, 1st Prize;  
General Proficiency, Treasurer's  
Medal.
- SERGEANT (E.)**, Preston.  
1870. 3rd Year Student, 3rd Coll. Prize;  
Cheselden Medal.
- SEWELL (E.)**, Little Oakley.  
1848. Physiology and Anatomy, Hon.  
Cert.
- SHARKEY (S. J.)**,\* Galway.  
1874. Physical Society's 2nd Year's Prize.
- SHAW (J.)**, Clapham Road.  
w 1874-5. 1st Year Student, 1st Coll. Prize.  
s 1875. 1st Coll. Prize.  
w 1875-6. 2nd Year Student, 1st Coll. Prize.
- SHEA (H. G.)**, London.  
1860. 1st Year Student, Hon. Cert.  
1861. 2nd Year Student, Hon. Cert.  
1862. 3rd Year Student, 2nd Coll. Prize.
- SHEA (J.)**, London.  
1855. Midwifery, Hon. Cert.  
1859. Midwifery, Hon. Cert.

- SHEPPARD (C. E.)**,† Kensington.  
w 1873-4. 1st Year Student, 1st Coll. Prize.  
s 1874. 1st Year Student, 2nd Coll. Prize.  
w 1874-5. 2nd Year Student, 1st Coll. Prize.  
s 1875. 1st Coll. Prize.  
w 1875-6. 3rd Year Student, 2nd Coll. Prize;  
Physical Society's 2nd Year's Prize.  
w 1876-7. 4th Year Student, the Treasurer's  
Gold Medal.  
w 1877-8. Solly Medal and Prize, £20.  
Paper published in Hosp.  
Reports, Vol. VIII.
- SHEPPARD (W. J.)**, Kensington.  
w. 1880-81. 3rd Year Student, 3rd Coll.  
Prize.  
w 1881-2. The Treasurer's Gold Medal.
- SHERRINGTON (C. S.)**, Caius Coll.,  
Cams.  
w 1882-3. 6th Year, Grainger Testimonial  
Prize.
- SHIRTLIFF (E. D.)**, Kingston-on-  
Thames.  
w 1882-3. 2nd Entrance Science Scholarship.
- SIDDAIL (J. B.)**,‡ Morton, Derby.  
1862. 1st Year Student, Hon. Cert.  
1863. 2nd Year Student, Hon. Cert.  
1864. 3rd Year Student, Hon. Cert.;  
Hon. Cert. for the Cheselden Medal.
- SIMMONS (H. B. M.)**, West Indies.  
1849. Descriptive Anatomy, Hon. Cert.
- SIMON (M. F.)**, Blackheath.  
1866. 1st Year Student, 1st Coll. Prize.  
1869. 3rd Year Student, 3rd Coll. Prize;  
Prosector's Prize;  
Prize and Hon. Cert. for Surgery  
and Surgical Anatomy.
- SIMS (G. S.)**, Derby.  
s 1881. 1st Year Student, 3rd Coll. Prize.
- SISSONS (W. H.)**, Hull.  
1858. Matriculation Examination—  
Physics, &c., Prize.  
1859. 2nd Year Student, Hon. Cert.;  
Clinical Medicine, Prize;  
Physical Society's Essay, Prize.  
1860. 3rd Year Student, 2nd Coll. Prize;  
Physical Society's Prize.
- SKINNER (W.)**, Stockton-on-Tees.  
1848. Botany, Hon. Cert.;  
Materia Medica, Hon. Cert.
- SKIPPER (J.)**, Dalston, London.  
1852. Midwifery, Hon. Cert.
- SKIPTON (S. S.)**, East Indies.  
1851. Midwifery, Hon. Cert.
- SLATER (J. S.)**, Bath.  
1868. 1st Year Student, 1st Coll. Prize.  
1869. Physical Society's 2nd Year's Prize.  
1870. 3rd Year Student, 2nd Coll. Prize;  
Treasurer's Gold Medal.
- SLAUGHTER (C. H.)**, Farningham  
1855. Midwifery, Hon. Cert.
- SLAUGHTER (G. M.)**, Farningham.  
1854. Midwifery, Hon. Cert.
- SMITH (H. U.)**, Reading.  
w 1876-7. 4th Year Student, Cheselden  
Medal.

\* Assist.-Physician to, and Joint Lecturer  
on Pathological Anatomy and Demonstrator  
of Morbid Anatomy at, St. Thomas's  
Hospital.

† Late Resident Assistant Physician and  
Medical Registrar to St. Thomas's Hospital.

‡ Late Physician to H.B.M. Legation,  
Japan.



SMITH (R. P.),\* Belvedere.

s 1876. 2nd Year Student, 2nd College Prize.

SMYTH (H. J.), Brondesbury.

w 1882-3. 1st Year Student, 3rd Coll. Prize.

s 1883. 1st Year Student, 1st Coll. Prize.

w 1883-4. 2nd Year Student, 1st Coll. Prize.

s 1884. 2nd Year Student, 2nd Coll. Prize.

w 1885-6. 4th Year Student, Treasurer's Gold Medal.

SNAITH (F.), Boston, Lincolnshire.

1864. 3rd Year Student, Hon. Cert.

SOLLY (E.), Congleton.

w 1883-4. 2nd Year Student, 2nd Coll. Prize.

w 1885-6. Solly Medal and Prize.

SOLLY (R. V.), Congleton.

w 1884-5. 2nd Year Student,  $\frac{1}{2}$  2nd College Prize.

SPRAKELING (R. J.), Canterbury.

1855. Midwifery, Hon. Cert.

1856. 2nd Year Student, Hon. Cert.;  
Clinical Medicine, Prize.

STABB (A. F.), Ilfracombe.

w 1885-6. 1st Year Student, 1st Entrance  
Science Scholarship;

The William Tite Scholarship.

STABB (E. C.), Ilfracombe.

w 1883-4. 2nd Year Student, Prosector's  
Prize.

s. 1884. 2nd Year Student, 1st Coll. Prize.

w 1885-6. 4th Year Student, qualified for  
Cheselden Medal.

STADDON (J. H.), London.

1858. Clinical Medicine, Prize.

1859. Clinical Medicine, Prize.

STEPHENS (J. N.), Walton-on-Thames.

w 1876-7. Physical Society's 1st Year's Prize.

STEPHENS (S. Sanders), Taunton.

1863. Physical Society's 2nd Year's Prize.

STODDART (F. W.), Bristol.

w 1877-8. 1st Year Student, 1st Coll. Prize.

STONE (W. H.),† London.

1854. Matriculation Examination—  
Scholarship;

1st Year Student, Scholarship;  
Descriptive Anatomy, Hon. Cert.;  
Botany, Prize;  
Chemistry, Prize.

1855. 2nd Year Student, Scholarship;  
Forensic Medicine, Prize;  
Physical Society's Essay, Prize;  
Practical Chemistry, Prize;  
Medicine, Prize;  
Descriptive Anatomy, Hon. Cert.;  
Materia Medica, Prize;  
Physiology, Prize; [Prize.  
Clinical Medicine, Mr. N. Smith's

1856. Clinical Medical Prize; [Medal.  
General Proficiency, Treasurer's

SUMMERHAYES (H.), Crewkerne,  
Somersetshire.

1861. Matriculation Examination—  
Classics and Mathematics,  
President's Prize; [Prize;  
Modern Languages, &c., College  
Physics and Natural History,  
College Prize;

The William Tite Scholarship.

1862. 2nd Year Tite's Scholarship.

1863. 3rd Year Tite's Scholarship;  
Treasurer's Gold Medal.

SUMMERHAYES (W.), Crewkerne,  
Somersetshire.

1856. Matriculation Examination—Clas-  
sics and Mathematics, Hon.  
Cert.;

Matriculation Examination—  
Modern Languages, Prize.

SUTCLIFF (E.), Camberwell.

1861. 1st Year, 3rd College Prize;  
Matriculation Examination—Hon.  
Cert.

1863. 3rd Year Student, 3rd Coll. Prize.

SUTCLIFFE (J.), Ashton-under-Lyne.

1869. Prosector's Prize.

SWALLOW (J. D.), Reading.

1861. 2nd Year Student, Hon. Cert.

SWEETING (R. B.), Reading.

1853. 1st Year Student, Scholarship;  
Descriptive Anatomy, Hon. Cert.;  
Chemistry, Hon. Cert.

1854. 2nd Year Student, Scholarship;  
Midwifery, Prize.

1855. 3rd Year Student, Scholarship;  
Midwifery, Hon. Cert.; [Prize.  
Clinical Medicine, Treasurer's

SWEETING (T.), Reading.

1855. Midwifery, Hon. Cert.

TAKAKI (Kanehiro), Kasumigaseki,  
Tokio, Japan.

w 1875-6. 1st Year Student, 3rd Coll. Prize.

s 1876. 2nd College Prize.

w 1876-7. 2nd Yr. Student, 1st Coll. Prize.

s 1877. 2nd Year Student, 3rd Coll. Prize.

w 1877-8. 3rd Year Student, 2nd Coll. Prize.

w 1878-9. 4th Year Student;  
"The Cheselden Medal;"  
The Treasurer's Gold Medal.

TALBOT (G. T.), Kidderminster.

1848. Medical Reports, Dr. Roots' Prize.

TAYLOR (C. M.), Wrawby, Brigg.

1871. 1st Year Student, 2nd Coll. Prize.

w 1872. 2nd Year Student, 1st Coll. Prize.

w 1873. 3rd Year Student, 1st Coll. Prize;  
Surgery and Surgical Anatomy  
Hon. Cert.

TAYLOR (S.),‡ Burton-on-Trent.

w 1872. 3rd Year Student, Hon. Cert.

TAYLOR (S. J.), Grantham.

s 1875. 1st Year Student, Hon. Cert.

w 1875-6. 2nd Year Student, The Musgrove  
Scholarship.

w 1876-7. 3rd Year Student, 2nd Year  
Musgrove Scholarship, and 1st  
College Prize.

\* Assistant Medical Officer, Bethlem Royal  
Hospital for Lunatics. Late Resident-Assis-  
tant-Physician to St. Thomas's Hospital.

† Censor, Royal College of Physicians.  
Physician to, and Lecturer on Physics and  
Natural Philosophy, and on Materia Medica  
at, St. Thomas's Hospital; Late Assistant-  
Physician to the Hospital for Consumption,  
Brompton.

‡ Physician North London Hospital for  
Consumption; Demonstrator of Anatomy,  
St. Thomas's Hospital.



w 1877-8. The Mead Medal;  
The Treasurer's Gold Medal.

**TEANBY (F. W.),** Turnham Green.

1851. Practical Midwifery, Prize.  
1852. Clinical Medicine, Junior Prize;  
Midwifery, Hon. Cert.

**THOMAS (L. M.),** Camberwell.

1866. 1st Year Student, 3rd Coll. Prize.  
1867. 2nd Year Student, 3rd Coll. Prize.  
1869. 3rd Year Student, 2nd Coll. Prize;  
Cheselden Medal.

**THOMAS (W. L.),** Neath, Glamorgan.

1845. Chemistry, Prize;  
Materia Medica, Prize.  
1847. Medicine, Hon. Cert.;  
Physiology and Anatomy, Prize.  
Physical Society's Essay, Prize.

**THOMPSON (F. H.),** Tenbury.

1870. Prosector's Prize.

**THURICUM (G. D.),** Kensington.

w 1878-9. Physical Society's 2nd Year's  
Prize.

**TIMOTHY (P. V.),** London.

1851. Practical Midwifery, Prize;  
Midwifery, Hon. Cert.

**TODD (A. J. M.),** Gravesend.

w 1863. 1st Year Student, 2nd Coll. Prize.  
w 1864. Prosector's Prize.

**TOLLER (S. G.),** Notting Hill.

w 1885-6. 1st Year Student, 2nd Entrance  
Science Scholarship.

**TOMSON (K.),** Luton, Beds.

1842. Materia Medica, Prize.  
1843. Medicine, Prize;  
Clinical Medicine, Hon. Cert.

**TOMSON (W. B.),** Luton, Beds.

w 1879-80. 1st Year Student, 2nd Coll. Prize.

s 1880. 1st Year Student, 2nd Coll. Prize.

w 1880-81. 2nd Year Student, The Mus-  
grove Scholarship, Prosector's  
Prize.

w 1881-2. 3rd Year Student, 2nd Coll. Prize;  
2nd Tenure of Musgrove  
Scholarship.

s 1882. 2nd Coll. Prize.

w 1882-3. Treasurer's Gold Medal.

**TONKING (J. H.),** Camborne.

w 1884-5. 3rd Year Student,  $\frac{1}{2}$  2nd and 3rd  
College Prizes.

w 1885-6. 4th Year Student, The Cheselden  
Medal.

**TOTSUKA (K.),** Tokio, Japan.

s 1882. 1st Year Student, 2nd Coll. Prize.

w 1882-3. 2nd Year Student,  $\frac{1}{2}$  Musgrove  
Scholarship and 1st Coll. Prize  
combined.

w 1883-4. 3rd Year Student, 2nd tenure of  
 $\frac{1}{2}$  Musgrove Scholarship, with  
3rd College Prize.

**TREND (H. G.),** Bridgewater.

1853. Practical Midwifery, Prize;  
Midwifery, Hon. Cert.  
1854. Midwifery, Hon. Cert.;  
Clinical Medicine, Treasurer's Prize.

**TREVES (W. K.),** Dorchester.

1863. Matriculation Examination—  
Physics and Natural History,  
Hon. Cert.; and

Modern Languages and Modern  
History, College Prize and Hon.  
Cert.;

1st Year Student, Hon. Cert.

1865. 3rd Year Student, 2nd Coll. Prize;  
Prosector's Prize.

**TURNERY (H. G.),** Camberwell Grove.

w 1885-6. 2nd Year Student, 2nd Coll. Prize.

**TYRREL (W.),** Richmond.

1851. Descriptive Anatomy, Hon. Cert.

1852. Medicine, Hon. Cert.;

Surgery, Hon. Cert.

1853. Forensic Medicine, Hon. Cert.;  
Ophthalmic Essay, Mr. Dixon's  
Prize.

1854. Surgical Reports, President's Prize.

**VARDY (J. L.),** London.

1854. Midwifery, Hon. Cert.

1855. Practical Midwifery, Prize.

**VERDON (H. W.),** Eccles.

2nd Year Student, Hon. Cert.

**WAGSTAFFE (W. W.),\*** Kennington.

1862. Matriculation Examination—Clas-  
sics and Mathematics, President's  
Prize.

Physics and Natural History,  
College Prize; [Prize;

Modern Languages, &c., College  
1st Year Student, Treasurer's  
Prize;

1863. 2nd Year Student, 1st. Coll. Prize.

1864. 3rd Year Student, 1st Coll. Prize;  
Physical Society's 3rd Year's Prize;  
Cheselden Medal;  
Treasurer's Gold Medal.

**WALKER (R.),** Kendal.

1854. Descriptive Anatomy, Hon. Cert.;  
Midwifery, Hon. Cert.

1855. Midwifery, Hon. Cert.

**WALLER (A.),** Islington.

1864. 1st Year Student, 1st Coll. Prize.

1865. 2nd Year Student, 1st Coll. Prize.

1866. 3rd Year Student, 1st Coll. Prize;  
Physical Society's 3rd Year's  
Prize;  
Treasurer's Gold Medal.

**WALLER (C. B.),** London.

1860. 2nd Year Student, Hon. Cert.

**WARD (F. H.),†** Scarboro'.

1863. 1st Year Student, Treas. Prize.

1864. 2nd Year Student, 1st Coll. Prize;  
Physical Soc. 2nd Year's Prize.

1865. 3rd Year Student, 1st Coll. Prize;  
Physical Soc. 3rd Year's Prize;  
Cheselden Medal;  
Treasurer's Gold Medal.

**WATSON (F.),** Nottingham.

1859. 1st Year Student, Hon. Cert.;

Matriculation Examination—  
Physics, &c., Prize.

**WAY (F. W.),** Fratton, Portsmouth.

1853. Descriptive Anatomy, Hon. Cert.;

Chemistry, Hon. Cert.;

1854. Midwifery, Hon. Cert.;

Surgery, Hon. Cert.

\* Late Assistant Surgeon to, and Joint Lec-  
turer on Anatomy at, St. Thomas's Hospital.  
Late Member of the Board of Examiners,  
Royal College of Surgeons.

† Assistant Medical Officer, Wandsworth  
Lunatic Asylum.

WAY (J. P.), Portsmouth.

1861. 1st Year, Hon. Cert.

WEBBER (W. W.), Crewkerne.

w 1876-7. 1st Year Student, 3rd Coll. Prize.

WEBSTER (E.), Lee.

w 1883-4. 1st Year Student, 1st Coll. Prize.

s 1885. 2nd Year Student,  $\frac{1}{2}$  2nd Coll. Prize.

WEBSTER (H.), Dulwich.

1851. Matriculation Sch., Hon. Cert. ;  
Descriptive Anatomy, Hon. Cert.

1852. Botany, Hon. Cert.

1853. Midwifery, Hon. Cert.

WEEKES (F. H.), Southampton.

w 1873-4. 1st Year Student, 3rd Coll. Prize.

s 1874. 3rd Coll. Prize.

w 1874-5. 2nd Year Student, 2nd Coll. Prize.

s 1875. 3rd Coll. Prize.

w 1875-6. 3rd Year Student, 3rd Coll. Prize.

WELLS (A. E.), Brixton.

w 1877-8. 1st Year Student, 2nd Entrance  
Science Scholarship.

WEST (J. F.) \*

1853. Midwifery, Hon. Cert.

1854. Forensic Medicine, Hon. Cert. ;  
Pathology, Hon. Cert.

1855. Ophthalmic Reports, Prize.

WHEATON (F. D. W.), Honiton.

1845. Practical Midwifery, Hon. Cert.

WHEATON (S. W.), Battersea Park.

s 1885. 3rd Year Student,  $\frac{1}{4}$  1st and 2nd  
College Prizes.

w 1885-6. 4th Year Student, The Mead  
Medal.

WHITEHEAD (J.), Preston.

1861. 1st Year, Hon. Cert.

1862. 2nd Year Student, 3rd Coll. Prize.

1863. 3rd Year Student, 2nd Coll. Prize.

WILES (J.), Hitchin, Herts.

1850. Physiology, Hon. Cert.

1851. (Accoucheur) Midwifery, Prize.

WILLIAMS (H.), Longley, near  
Gloucester.

1868. 1st Year Student, 2nd Coll. Prize.

1869. 2nd Year Student, 3rd Coll. Prize.

WILLIAMS (J.), Westerleigh, Bristol.

1855. 1st Year Student, Scholarship;

Midwifery, Prize;

Botany, Prize;

Chemistry, Hon. Cert.

Descriptive Anatomy, Prize.

Materia Medica, Hon. Cert.

1856. 2nd Year Student, Treas 1st Prize.

1857. 3rd Year Student, Hon. Cert.

General Proficiency, Treasurer's  
Medal.

WILLIAMS (J.), Doncaster.

1858. 1st Year Student, Hon. Cert.

1859. 2nd Year Student, Hon. Cert. ;  
Clinical Medicine, Prize.

1860. 3rd Year Student, Hon. Cert.

WILLIAMS (P. H.), Monmouth.

s 1872. 1st Year Student, Hon. Cert.

WILLIAMS (P. M. G.), Newcastle  
Emlyn.

1864. Practical Midwifery, Prize.

WILLIAMS (R. M.) Beaumaris.

1880. 1st Entrance Science Scholarship.

WILLIAMS (W. R.),<sup>†</sup> Nottingham.

1856. Matriculation Examination in  
Classics, Mathematics, Hon. Cert.

WILLIAMSON (R. J.), Ripon.

w 1876-7. 1st Entrance Sc. Scholarship.

WITHERBY (W. H.), Croydon.

1853. Matriculation Examination in  
Modern Languages, Prize.

WOAKES (E.), Luton, Beds.

1856. 1st Year Student, Hon. Cert.

1857. 2nd Year Student, 2nd Prize ;  
Clinical Medical Prize.

1858. Essay on Neuralgia, Mr. N. Smith's  
Prize ;  
Surgery and Surgical Anatomy,  
Cheselden Medal.

WOOD (G. J.), London.

1863. Descriptive Anatomy, Hon. Cert

WOOD (R. H.), Loughborough,  
Leicester.

1854. Descriptive Anatomy, Hon. Cert.

1855. Surgery, Hon. Cert. ;  
Midwifery, Prize ;  
Medicine, Hon. Cert. ;  
Descriptive Anatomy, Prize ;  
Physiology, Hon. Cert.

1856. Physical Society's Essay, Prize.

WOODHOUSE (T. J.), London.

1855. Chemistry, Hon. Cert. ;  
Materia Medica, Hon. Cert.

WOODMAN (W. E.), Camberwell.

s 1875. 1st Year Student, 2nd Coll. Prize.

WOTTON (H. G.)

1855. Midwifery, Hon. Cert.

1856. Midwifery, Hon. Cert.

WRENCH (E. M.), Cornhill.

1851. Descriptive Anatomy, Hon. Cert. ;  
Physical Society's Essay, Treas-  
urer's 1st Year's Prize ;

1852. Physiology, Hon. Cert.

WRIGHT (E. H.), Jersey.

s 1885. 2nd Year Student,  $\frac{1}{2}$  2nd Co'l Prize.

WYMAN (W. S.), Kettering, North-  
hampton.

1852. Matriculation Examination  
Scholarship.

<sup>†</sup> One of H. M. Commissioners in Lunacy ;  
late Resident Physician to Bethlehem Royal  
Hospital ; late Lecturer on Mental Diseases  
at St. Thomas's Hospital.

\* Late Surgeon to Queen's Hospital, and  
Professor of Clinical Surgery at Queen's  
College, Birmingham.

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